


1823

**First lessons in geography and astronomy with seven plain maps,
and a view of the solar system : for the use of young children, as
preparatory to ancient and modern geography**

Jacob Abbot Cummings

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Fourth



Edition.



FIRST LESSONS

IN

Geography and Astronomy,

WITH SEVEN MAPS,

AND A PLATE OF THE SOLAR SYSTEM,

FOR THE USE OF

Young Children.

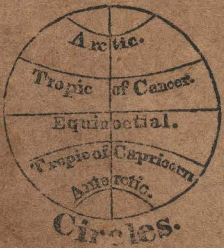
BY J. A. CUMMINGS.

BOSTON:

Published by Cummings & Hilliard,

Boston Bookstore, No. 1 Cornhill.

1823.



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M. C. Smith

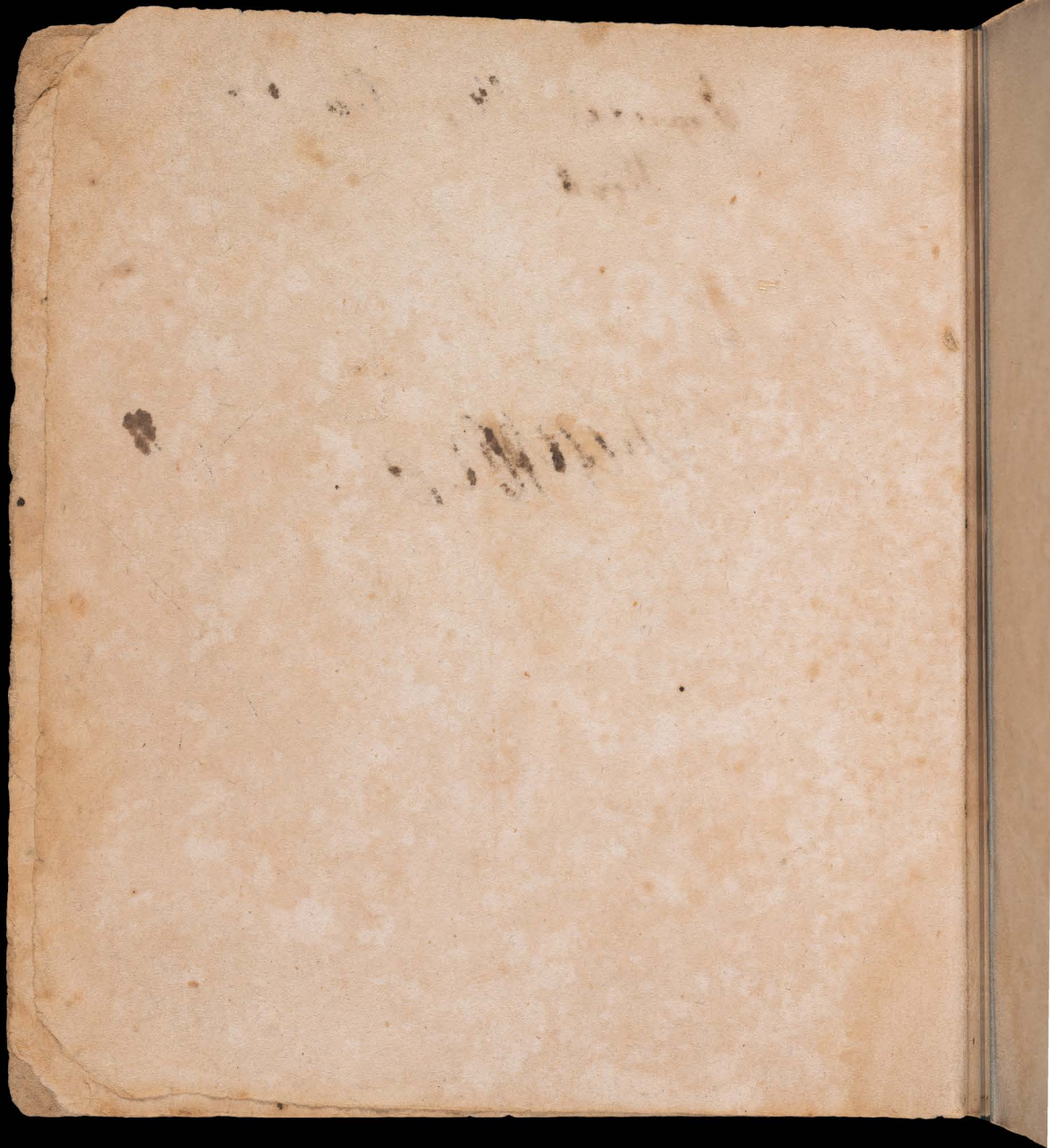
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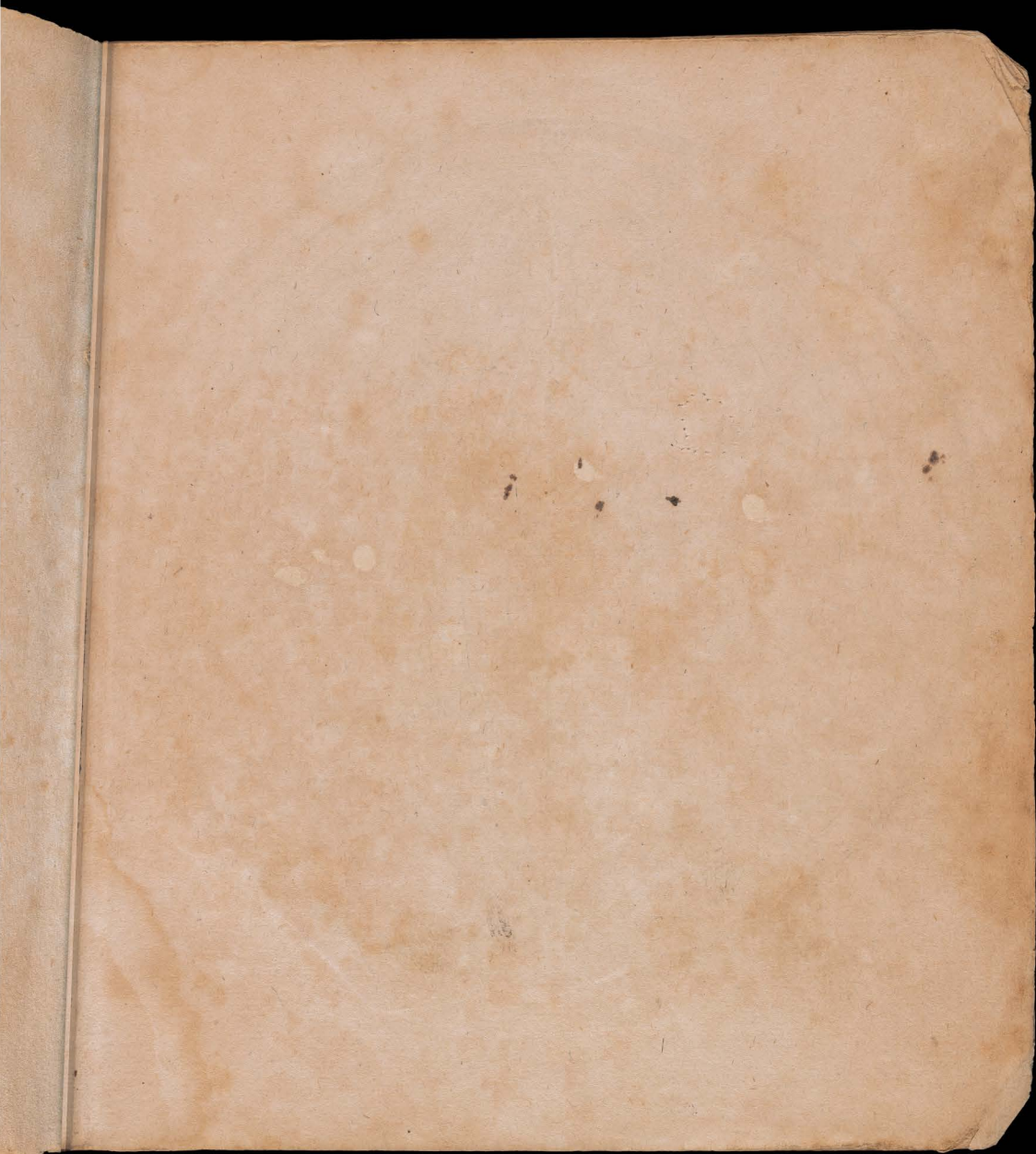
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For sale
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FIRST LESSONS
IN
GEOGRAPHY AND ASTRONOMY,
With Seven Plain Maps,
AND
A VIEW OF THE SOLAR SYSTEM,
FOR THE USE OF
YOUNG CHILDREN,
AS PREPARATORY TO
ANCIENT AND MODERN GEOGRAPHY.

BY J. A. CUMMINGS.

FOURTH EDITION.

Boston:

PUBLISHED BY CUMMINGS AND HILLIARD.

*For sale by H. Whipple, and Cushing & Appleton, Salem.—H. Gray & Co. Portsmouth,
(N. H.)—Goodale, Glazier & Co. Hallowell, (Maine.)—G. Goodwin & Sons, Hartford.
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Carey & Lee, Philadelphia.—And E. J. Coale, Baltimore.*

STEREOTYPED BY T. H. CARTER AND CO.

.....

1823.

DISTRICT OF MASSACHUSETTS, *to wit:*

District Clerk's Office.

L. S. BE IT REMEMBERED, That on the thirtieth day of October, A. D. 1813, in the forty-third year of the Independence of the United States of America, *Jacob A. Cummings*, of the said District, has deposited in this office the title of a book, the right whereof he claims as Author, in the words following, *to wit:*—"First Lessons in Geography and Astronomy, with seven plain maps, and a view of the Solar System, for the use of young children, as preparatory to Ancient and Modern Geography. By J. A. Cummings." In conformity to the Act of the Congress of the United States, entitled, "An Act for the encouragement of learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies during the times therein mentioned;" and also to an Act entitled, "An Act supplementary to an Act, entitled, An Act for the encouragement of learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies, during the times therein mentioned; and extending the benefits thereof to the arts of designing, engraving and etching historical, and other prints."

JNO. W. DAVIS, } Clerk of the District
of Massachusetts.

PREFACE.

Although the subject of Geography has of late years been justly considered an essential branch of a good education, it is generally thought to be above the capacities of young children, and fit only for the study of higher classes. But it is fully ascertained, that with the use of maps, it is one of the most suitable exercises for children of any age, after they can read and spell with tolerable ease and correctness. To this, however, many parents are slow to yield assent, and are unwilling that their children should early commence this study, from a reluctance to incur the expense of suitable books and maps merely to try an experiment; the success of which they very much doubt. To remove this objection, and to convince both parents and teachers, that this study is, perhaps of all others, the most suitable for children, even of six or eight years of age, is the object of the following book.

To render these Lessons as easy as possible, they are accompanied by maps, which, though not elegant, are plain and intelligible. Had the maps been neatly engraved on copper, the expense would have frustrated the design of the work. The book and the maps are so constructed and arranged, that they almost precisely correspond; so that the names in one, will readily be found on the other.

Although the knowledge of Geography, which may be obtained from the following Lessons, will be a valuable acquisition; it must not be thought that they contain all the information necessary on so important a subject. This is designed only as a general outline, which, when sufficiently impressed upon the mind, should be filled up by reference to our Ancient and Modern Geography for the use of schools, which contains all that is important to be *studied* on this subject.

The Lessons on Astronomy, concise and general as they are, will, we trust, be acceptable. We are fully sensible, that some of the illustrations may be found not altogether intelligible to young minds but perhaps some parents and teachers may be pleased to amuse themselves and their children by exhibiting the motions of the earth, the moon, and other planets; and thus, by explaining some of their phenomena, they may perhaps excite a curiosity in early life, which may lead to future eminence.

In writing this book, it was found not easy to avoid the use of some words, which are unintelligible to children; nor have we been so scrupulous on this point, as some are disposed to think necessary. By using the best words in our language in all books of study, the means are furnished for one of the most valuable exercises that can be given to young persons, which is, that of marking with a pen or pencil, and looking out in a dictionary every word, the signification of which they do not perfectly understand, and committing the definition to memory. This exercise sharpens the faculty of investigation, strengthens the memory, and prepares the mind for understanding readily whatever is read or heard.

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GEOGRAPHY.

LESSON I.

GEOGRAPHY is a description of the earth.

The earth is a large globe or round body, nearly 8 thousand miles in diameter, and about 25 thousand miles round.

The *diameter* of the earth, or of any other body, is an imaginary straight line passing through its centre from one side of it to the other.

It is known that the earth is round, from its having been many times sailed round.

The earth is 95 millions of miles from the sun, from which it receives its light and heat.

The earth moves round the sun once a year, and turns on its *axis* every day.

The *axis* of the earth is a straight line through its centre, from *north* to *south*, around which it turns once a day.

Example. Put a straight wire or stick through the centre of an apple, and it will represent its *axis*, the extremities or ends of which are called the *poles*.

The first natural division of the earth is into land and water.

Natural divisions are those which are made by nature; as mountains and plains. *Civil* or *political divisions* are those which are made by men; as kingdoms, states, and towns.

The surface of the earth is diversified by hills, plains, mountains, and valleys. It is inhabited by a vast variety of animals as men, birds, beasts, reptiles.

More than two thirds of the earth's surface is covered with water, which is stored with fishes of various kinds.

The land is divided into continents, islands, peninsulas, isthmuses, capes, promontories, mountains, and shores or coasts.

The water is divided into oceans, or harbours, friths or estuaries, seas, lakes, gulfs or bays, channels, straits, creeks, roads, havens sounds, and rivers.

PRACTICAL QUESTIONS.

What is Geography?

What is the earth?

How many miles round is the earth?

How many miles in diameter?

What is meant by the diameter of a body?

How is it known that the earth is round?

How far is the earth from the sun?

What does it receive from the sun?

Round what does the earth revolve?

How often does it move round the sun?

How often round its own axis?

What is the axis of the earth?

What are the extremities of the axis called?

What is the first natural division of the earth?

What are natural divisions?

What are civil divisions?

How is the surface of the earth diversified?

By what is it inhabited?

What part of the earth's surface is water?

How is the land divided?

How is the water divided?

LESSON II.

Divisions of Land.

A *continent* is a vast extent of land, not entirely separated by water.

There are three continents; the western, containing *North and South America*, as seen on the first map; and the eastern, containing *Europe, Asia, and Africa*, and the continent of *New Holland*, which are on the second map.

An *island* is a portion of land, surrounded by water; as,

New Zed'land, Newfoundland, and Ice'land on the first map.

A *peninsula* is a portion of land, almost surrounded by water; as,

Spain and Greece, on the map of Europe.

An *isthmus* is a neck of land, which connects a peninsula to the main land; as,

The *isthmus of Da'rien* connecting *North and South America*; and the *isthmus of Su'ez*, between the *Mediterranean Sea* and the *Red Sea*, connecting *Asia* and *Africa*.

A *promontory* is a high land extending into the sea.

A *cape* is the extremity or end of a point of land extending into the sea; as,

Cape Horn and *Cape of Good Hope*, which see on the first and second maps.

A *mountain* is a vast elevation of land; as,

The *Andes* in South America.

A *coast* is the edge of the land bordering upon the sea or ocean.

A *shore* is the edge of the land bordering upon a sea or river.

PRACTICAL QUESTIONS.

What is a continent?

How many continents are there?

Name them.

What is an island?

What is a peninsula?

What is an isthmus?

What is a promontory?

What is a shore?

What is a cape?

What is a mountain?

LESSON III.

Division of Water.

An *ocean* is a vast collection of water, not separated by land; as,

The *Atlantic*, the *Pacific*, and the *Indian Oceans*.

A *sea* is a less extent of water, mostly surrounded by land; as,

The *Red Sea*, and the *Mediterranean Sea*, on the second map.

A *lake* is a collection of water surrounded by land; as,

Lakes *Ontario*, *Erie*, *Huron*, *Michigan*, and *Superieur*, on the map of North America.

A *gulf* or *bay* is a part of the sea extending into the land; as,

The *gulf of Mexico*, *Baffin's* and *Hudson's bays*, in North America.

A *strait* is a narrow passage of water from one sea or ocean to another; as,

The *strait of Gibraltar*, on the map of Europe; and the *strait of Magellan*, on the map of South America.

A *channel* is a passage of water from one sea to another, wider than a strait; as,

The *British channel*, on the map of Europe.

A *haven* or *harbour* is a part of the sea, almost surrounded by land, where ships may lie in safety.

A *road* is a place of anchorage, at some distance from the shore, where vessels lie, when waiting for wind or tide to put to sea, or to carry into harbour.

An *estuary* or *frith* is the widening of a river towards its mouth, into an arm of the sea.

A *sound* is a strait so shallow, that it may be sounded or measured with a lead and line.

A *river* is a large land-stream of water.

PRACTICAL QUESTIONS.

What is an ocean?
What is a sea?
What is a lake?
What is a gulf or bay?
What is a strait?
What is a channel?

What is a haven or harbour?
What is a road?
What is an estuary or frith?
What is a sound?
What is a river?

LESSON IV.

Map of the World.

A *map* is a delineation or picture of the earth's surface, or part of its surface, on a plane or level.

Remark. The two first maps are intended to form a picture of the surface of the whole earth.

Illustration 1. To conceive how these two plane flat maps may represent a round body, suppose them cut out of the book, and sewed together, back to back, so that the Pacific ocean and the figures on the edge of one, may be joined to the Pacific ocean and to the corresponding figures on the edge of the other; then,

2. Suppose the paper on which the

maps are printed, to be elastic or yielding like soft wet leather, and to be inflated or blown up like a bladder, and you will then have an idea of a globe, and of the countries pictured on it, as they really are situated on the earth.

A *hemisphere* is one half of the globe.

Illustration 1. If we suppose the two maps to be blown up into a round ball, as just described, it will be easily perceived, that the two great oceans, the *Atlantic* and *Pacific*, are on opposite sides of it; and that the two great continents, the *eastern* and *western*, are on the two other opposite sides.

2. Now suppose the globe to be divided into two equal parts through the two great oceans, and placed side by side, one at the right hand of the other, and it will be seen, that a part of each ocean will be on each half or *hemisphere*, and that the two continents will be, one on the *eastern*, and the other on the *western hemisphere*.

Inference. Hence it is evident, that the two first maps represent a picture of the earth; and that although the Pacific ocean appears on the east side of one, and on the west side of the other, and the Northern ocean is spread around the poles of both hemispheres, still there is but one Northern ocean, and but one Pacific ocean,

Practical Questions, to be answered while looking on the map.

What is a map?

Of what are the two first maps a picture?

What is a hemisphere?

How many hemispheres are there?

What are they called?

In which hemisphere is Europe?

In which hemisphere is the American continent?

In which hemisphere are the West India

Islands? (designated on the map by W. I.)

In which hemisphere is Asia?

In which hemisphere is Africa?

In which hemisphere are the Sandwich Islands?

In which hemisphere are the Philippine Islands?

In which are the Gallapago Islands?

LESSON V.

Cardinal Points.

The four principal points of the compass, *east, west, north, and south*, are called the *cardinal points*.

The top or upper part of the map is *north*, the bottom *south*, the right hand *east*, and the left hand *west*.

Remark. In order to form correct ideas respecting the situation of places on the earth, the learner should sit or stand with his face towards the *north*; this will bring his right hand towards the *east*, where the sun rises, and his left hand towards the *west*, where the sun sets.

Practical Questions, to be answered while looking on the map.

What are the cardinal points?

What part of the map is north?

What part is south?

On which hand is east?

On which hand is west?

Which way is New Holland from Asia?

What ocean is between New Hol'land and Africa?

On which side of North America is Newfoundland?

In what ocean is the Island of Madagas'car?

On which side of Africa is Madagas'car?

Which way from North America are the Sandwich Islands?

In what ocean are the Friendly Islands?

Which way are the New Heb'rides from the Society Islands?

Which way from Asia is Japan?

Which is most northerly, Juan Fernan'dez, or Chilo'e?

What part of Asia is Sibe'ria?

Which way from North America is Bher'ing's strait?

What sea is between Europe and Africa?

Which way from Africa are the Azo'res and Cape Verd Islands?

In what part of Asia is Chi'na?

What cape at the southern extremity of South America?

What cape at the southern extremity of Africa?

On which side of North America is Ice'land?

LESSON VI.

The Equator and Latitude.

The *equator* is an imaginary great circle, passing round the earth from east to west, and dividing it into *northern* and *southern* hemispheres.

The *equator* on the map of the world is a straight line, which crosses it in the centre *between* north and south, from the *right*

hand to the left; on one end of it is placed E. for *east*, and on the other end W. for *west*.

Latitude means *side*, and is either *north* or *south* of the *equator*.

All places *north* of the *equator* are in *north latitude*.

All places *south* of the *equator* are in *south latitude*.

Practical Questions, to be answered while looking on the map.

What is the *equator*?

What is the *Equator* on the map of the world?

What is *Latitude*?

When is a place in north latitude?

When is a place in south latitude?

In what latitude is Europe?

Ans. North latitude.

Why is Europe in north latitude?

Ans. Because it is north of the *equator*.

In what latitude is New Holland?

Why is it in south latitude?

In what ocean are the Society Islands?

In what latitude are they?

Why are they in south latitude?

What sea is there between A'sia and Af'-rica?

Which way from Af'rica is the Island St. Hel'ena?

In what latitude is it?

Why is it in south latitude?

On which side of South America are the An'des?

LESSON VII.

Parallels of Latitude.

Parallels of latitude are circles, which encompass the earth from east to west, parallel to the equator on each side of it.

Parallels of latitude on the map of the world, are regular curve lines which cross it from east to west on both sides of the equator.

On each end of the *parallels* are

placed figures, expressing the number of degrees they are in from the equator either north or south.

The degrees of latitude begin at the equator, and are thence numbered on each side of it, north and south to 90° at the poles.

The small cipher [°] over the right hand of 90 denotes *degrees*.

Practical Questions, to be answered while looking on the map.

What are parallels of latitude?

What do the figures on each end of the parallels express?

How are the degrees of latitude numbered?

What does the small cipher (°) over the right hand of 90 denote?

In what latitude is Newfoundland?

Ans. In north latitude.

Why is it in north latitude?

Ans. Because it is north of the equator.

In what degree of north latitude is it?

Ans. 50° (*See the figures in the margin of the map on each side of it.*)

In what latitude is St. Hel'ena?

Ans. In south latitude.

Why is it in south latitude?

Ans. Because it is south of the equator.

Between what degrees of south latitude is it?

Ans. Between 10° and 20°.

N. B. Ask the same questions concerning other places; but it is not necessary that the answers should be committed to memory, so as to be repeated out of the book.

LESSON VIII.

The World.

There are five grand divisions of the earth; *Europe, Asia, Africa, America*, and *New Holland*; besides several clusters of islands, which have particular names, as the *East Indies*, the *West Indies*, &c.

Europe is the smallest grand division of the earth; but it is distinguished by the cultivation of its soil, and for the improvement of its inhabitants in science, arts, and laws.

Asia is the part of the world where our first parents, Adam and Eve, were placed, and where most of the events happened which we read of in the Bible.

Africa has always been in a state of barbarism, except *Egypt*, where learning and arts were first studied; and Carthage, which, for a long time, was able to contend with the Roman empire.

America is remarkable for the number, size, and grandeur of its mountains, lakes, and rivers. A great part of it is yet unknown, and uninhabited, except by savages and wild beasts.

New Holland is about as large as Europe. It was unknown to the civilized world till about two hundred years ago, and is still little known, except some parts of the coast.

PRACTICAL QUESTIONS.

How many grand divisions of the earth are there?

Which is the smallest?

For what is it distinguished?

In which quarter of the world were our first parents placed?

What events have happened in Asia?

What has always been the state of Africa?

What places are excepted, and what is said of them?

For what is America remarkable?

By what is a great part of it inhabited?

How large is New Holland?

How long has it been known to the civilized world?

LESSON IX.

Boundaries and extent of the Grand Divisions.

The *American continent* extends from Cape H—— about 56° S. latitude to the N. pole.

It is bounded E. by the - - - - - ocean,

and W. by the - - - - - ocean.

Europe is bounded N. by the - - - - - ocean,

S. by the - - - - - sea,

which separates it from - - - - -

It is bounded E. by - - - - - A——

and W. by the - - - - - ocean.

Africa is bounded N. by the - - - - - sea,

which separates it from - - - - - E——

S. it terminates in the Cape of - - - - -

about 35° S. latitude.

It is bounded E. by the - - - - - ocean,

and W. by the - - - - - ocean.

Asia is bounded N. by the - - - - - ocean,

S. by the - - - - - ocean,

E. by the - - - - - ocean,

and W. by - - - - -

New Holland is situated southeast of Asia, between the Indian ocean on the W., and the Pacific ocean on the E.

N. B. These boundaries should be taught by allowing the scholar to have the map *only* before him, and by assisting him, till he can easily and correctly read them on the map without any other

guide. After being read there a few times daily for several days, so as to render them familiar, they should be perfectly committed to memory.

PRACTICAL QUESTIONS.

From what does the American continent
extend in south latitude?

To what does it extend north?

How is the American continent bounded
east?

How is it bounded west?

How is Europe bounded?

How is Africa bounded?

How is Asia bounded?

How is New Holland situated?

LESSON X.

Meridians.

A *meridian* is an imaginary great circle passing round the globe from north to south, and dividing it into eastern and western hemispheres.

Meridians on the map are those lines, which cross it north and south, or which run from the top to the bottom.

Meridians are used to show the different degrees of longitude.

Longitude is the distance of a place either east or west of the *principal meridian*.

The *degrees* of longitude on the map of the world are expressed in figures on the equator. On other

maps the figures are generally placed at the top and bottom.

The *principal meridian* is that from which longitude is generally reckoned. It is that which passes through the town of Greenwich in England, and so near the city of London, that it is generally called the *meridian of London*.

The principal meridian on the map of the world is marked with a cipher or nought on the equator.

Longitude is reckoned both east and west from the principal meridian, half way round the globe, or to 180°, where the numbering each way meets.

Practical Questions, to be answered while looking on the map.

Where are the Azores?

Ans. In the ——— ocean.

In what longitude are they?

Ans. In W. longitude.

Why are they in west longitude?

Ans. Because they are W. of the meridian of London.

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How many degrees W. longitude are they?

Ans. Between 30° and 40° . (See the meridians numbered on the equator.)

In what longitude is the Red sea?

Ans. In E. longitude.

Why is it in E. longitude?

Ans. Because it is E. of the meridian of London.

How many degrees is it E. of London?

Ans. About 40° —or between 30° and 50° .

In what longitude is the island of Formosa?

Ans. In E. longitude.

Why is it in E. longitude?

Ans. Because it is E. of the meridian of London.

How many degrees is it E. of London?

Ans. Between 120° and 130° .

In what longitude are the Friendly Islands and N. Zealand?

Ans. They are in 180° , either E. or W. longitude.

How can they be in either E. or W. longitude?

Ans. Because the reckoning of longitude east or west of the meridian of London terminates or meets at the 180^{th} degree, which is exactly opposite to London, or is just half way from it round the globe.

LESSON XI.

The Tropics, Polar Circles, and Zones.

The *tropics* are two *less* circles, passing round the earth on each side of the equator, at the distance of twenty-three degrees and twenty-eight minutes, [$23^{\circ} 28'$.]

Note. See the figure, which represents the tropics, on the cover of this book.

Remarks. As the small cipher [$^{\circ}$] over the right hand of a figure denotes degrees, so the accent [$'$] over the right hand of a figure denotes minutes; as $28'$ signifies twenty-eight minutes.

A *degree* is the three hundred and sixtieth [360^{th}] part of a *circle*.

A *minute* is the sixtieth [60^{th}] part of a *degree*.

Less circles are those which divide the earth into two *unequal* parts.

Great circles are those which divide the earth through the centre into two *equal* parts.

The *polar circles* are described round the poles at the distance of $23^{\circ} 28'$.

Zones are divisions of the earth's surface in regard to the different degrees of heat and cold, which prevail in different latitudes.

See the figure which represents the zones on the cover of this book.

There are *five* zones, the *torrid* or burning zone, the two *temperate* zones, and the two *frigid* or frozen zones.

The *torrid zone* is that portion of the earth's surface, which lies between the tropics.

The *two temperate zones* are those portions of the earth's surface, which are included between the tropics and the polar circles.

One is called the *northern temperate zone*, the other the *southern temperate zone*.

The *two frigid zones* are those portions of the earth's surface, which are included within the polar circles, and extend $23^{\circ} 28'$ in every direction from the poles.

The temperature of the *torrid zone* is *hot*; of the *temperate zones*, *moderate*; of the *frigid zones*, *excessively cold*.

PRACTICAL QUESTIONS.

What are the tropics?

What does the small cipher [o] over the right hand of a figure denote?

What does the accent ['] over the right hand of a figure denote?

What part of a *circle* is a *degree*?

What part of a *degree* is a *minute*?

What are *less* circles?

What are great circles?

What are the polar circles?

What are zones?

How many zones are there?

What is the *torrid zone*?

What are the *temperate zones*?

What are the *frigid zones*?

LESSON XII.

America.

The *American continent* is the largest of the five grand divisions of the earth. It is about nine thousand miles long, from north to south, and of various widths, as appears from its shape on the map of the world.

The American continent is divided into North America and South America.

Remark. The boundary line between N. and S. America crosses the isthmus of Da'rien between the bay of Panà'ma and Carthage'na. (See the map of S America.)

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Natural Divisions of North America.

Mountains. Mount Eli'as, Stony mountains.

There are two other vast chains of mountains in North America; one extending through Mexico, called the *Cordilleras of Mexico*; the other extending through the United States, and called the *Alle-gany mountains*.

The Cordil'eras of Mexico are so very high, that, although they are in a warm climate, the tops of some of them are always covered with snow. They are rendered very awful and grand by being volcanoes or burning mountains, which constantly send forth vast clouds of smoke and flames of fire.

Lakes. Slave lake, Win'nipeg, Lake Super'ior, Mich'igan, Hu'ron, Erie, and Onta'rio.

These lakes are the largest collections of fresh water yet known, and being connected together by large rivers and straits, and with the Atlantic ocean by the river St. Lawrence, they afford easy and convenient water passage more than a thousand miles into the heart of the country.

Rivers. Macken'zie's, St. Lawrence, Missou'ri, Oh'io, and the Mississip'pi.

Bays, Gulfs, &c. Baffin's and Hud'son's bays, gulf of St. Lawrence, Del'aware, and Ches'apeake bays, gulf of Mexico, Carribbe'an sea, the bays of Hondu'ras and Campea'chy, and the gulf of California.

Straits. Davis', Hud'son's, and Bher'ing's strait.

Remark. Look for Bher'ing's strait on the map of the world, where it will be seen to separate N. America from A'sia.

Isthmus. The isthmus of Da'rien, which connects North and South America.

Islands. Iceland, Newfound-land, cape Bret'on, Queen Char'lotte's, and Vancou'ver's island.

Capes. Capes Fare'well, Hat'teras, and St. Lu'cas.

PRACTICAL QUESTIONS.

What is said of the size of the American continent?

How many miles long is it?

How is it divided?

In what part of N. America is Baffin's bay?

Which is most northerly, Win'nipeg or Slave lake?

Which is most easterly, the gulf of Mexico or the gulf of California?

What two rivers flow into the Mississip'pi?

Which is most easterly, lake Supe'rior or Onta'rio?

Which way is Hud'son's bay from the gulf of Mex'ico?

Which is most westerly, Hud'son's or Davis' strait?

Near what sound is mount Elias?

Which is most northerly, bay of Campea'-chy or Hondu'ras?

Which is most easterly, lake Mich'igan or E'rie?

In what part of N. Amer'ica are Cook's river and Prince William's sound?

Between what two lakes is lake Hu'ton?

On which side of N. Amer'ica are the Stony mountains?

Which is most northerly, the Del'aware or Ches'apeake bay?

Which way is cape Hat'teras from cape Fare'well?

Out of what lake does Macken'zie's river flow?

LESSON XIII.

Civil Divisions in North America.

North Amer'ica is divided into

Danish }
Amer'ica, } containing

{ Green'land,
{ Ice'land.

British }
Amer'ica, }

{ Lab'rador,
{ Can'ada,
{ Nova-Sco'tia,
{ New-Brunswick,
{ Newfoundland',
{ Bermu'das.

Spanish }
Amer'ica, }

{ Mex'ico,
{ Guatima'lia.

United } which extend from the gulf of Mex'ico to the great
States, } lakes, and include Louisia'na.

The United States are bounded

N. by the great lakes, which separate them from —

S. by the — — — — —

E. by the — — — — — ocean,

W. by the river —, which separates them from Louisia'na.

Cities & Towns. The principal cities and towns in the U. States are Bos'ton, New-York, Philadel'phia, Wash'ington, Charles'ton, Savan'nah, and New-Or'leans.

The western and north-western coast of North Amer'ica, and all the interior west of Can'ada and the United States, are inhabited by numerous tribes of Indians.

PRACTICAL QUESTIONS.

Which is most northerly, Can'ada or the U. States?

What part of the United States is New-England?

Which is most northerly, Lab'rador or Can'ada?

Which way from the United States is Louisia'na?

Which is most southerly, Mex'ico or New-Mex'ico?

What lakes separate the United States from Can'ada?

What river separates the United States from Louisia'na?

Which way from New-Mex'ico is California?

In what part of New-Eng'land is Bos'ton?

Which is most northerly, Charles'ton or Savan'nah?

Which way is New-Or'leans from New-York?

Which is most northerly, Philadel'phia or Wash'ington?

Which is most easterly, Green'land or Ice'land?

LESSON XIV.

West Indies.

The *West Indies* are a cluster of islands in the waters of the Atlan'tic ocean, between North and South Amer'ica, or between the *gulf of Mex'ico* and the *Carribbean sea*.

The principal islands are Cu'ba, St. Domin'go, Jama'ica, and Porto Ri'co.

Remark 1. The *West Indies* are subject to frequent earthquakes, violent thunder and lightning, and, in autumn, to furious hurricanes.

2. The climate is, in general, hot and unhealthy. The soil is fertile, and being watered by frequent showers, produces in abundance, sugar, cotton, coffee, oranges, lemons, mahogany wood, and many other valuable articles.

When the *West Indies* were first discovered, it was supposed they belonged to

the Asiatic islands, which were then known by the general name *In'dies*: but when it was ascertained that they were on opposite parts of the earth, *these*, being in longitude *west* of the meridian of London, were called *West In'dies*, to distinguish them from the islands south of A'sia, which were accordingly called *East In'dies*.

PRACTICAL QUESTIONS.

In what waters are the West In'dies?

What sea is south of them?

Which is most easterly, St. Domin'go or Cu'ba?

Which is most northerly, Cu'ba or Jama'ca?

What are some of the articles produced in the West In'dies?

What are the West In'dies subject to?

What is the climate?

What gulf is northwest of Cu'ba?

Which way is Por'to Ri'co from Jama'ca?

LESSON XV.

Natural Divisions of South America.

Mountains. The great chain of mountains which passes through South America, from north to south, is called the An'des.

Remark 1. These mountains are more than twenty thousand feet, or nearly four miles high above a level with the sea; and have, till within a few years, been thought to be the highest mountains in the world; but the mountains of Thibet', in A'sia, are now thought to be more than twenty-five thousand feet, or more than four miles and three quarters high.

2. The An'des are broken into many heights and ridges, and are spread over a great many hundred miles of that country. The highest summits, although in a hot climate, are always covered with snow, and the clouds of heaven almost constant-

ly rest upon them, and conceal their tops from sight. In the sides of many of them are found the richest mines of silver and gold, and other precious metals.

Rivers. Orino'co, Am'azons, and Ri'o de la Pla'ta.

Remark. The Am'azons and the Ri'o de la Pla'ta are the largest rivers in the world. They are about two or three thousand miles long, and one hundred and fifty miles wide at their mouths.

Bays, &c. Panà'ma bay and the bay or gulf of Guay-a-quil', (*pronounced* Gua-a-keel'), strait of Magell'an.

Islands. Trinidad', Grande, Geor'gia, Faik'land, Ter'ra del

ian of Lon-
s, to distin-
uth of A'sia,
East Ind'ies.

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SOUTH AMERICA.



A. Bowen sc

Fu'ego, Chiloe, Ju'an Fernan'dez,
St. Fe'lix, Gallapa'gos.

Remark. Ju'an Fernan'dez is the island on which the celebrated Robinson Cru'soe for several years resided in solitude. The life of this unfortunate man is very beautiful and interesting for young persons; but it is not exactly true. The truth is, one Alexan'der Sel'kirk of Scot'land, who was sailing in these seas, was put ashore on this lonely island by his angry captain, with only a gun and some

powder to assist him in getting his living. Here he lived several years on fish and fowl, and goat's milk, till at length a ship was passing by, which took him off and carried him home. These misfortunes of Alexan'der Sel'kirk gave rise to the beautiful story of Robinson Cru'soe, which was written by a celebrated Englishman, by the name of Daniel de Foe.

Capes. Cape Vela, Cape Horn, Cape Blan'co, and Cape St. Roque (*pronounced Rōke.*)

PRACTICAL QUESTIONS.

On which side of South America are the An'des?

How many miles high are they?

What is said of their tops?

What are found in their sides?

What river flows into the Atlantic on the equator?

Which is most northerly, Orino'co, or Ri'o de la Plata?

What two bays in the northwest part of South America?

What strait at the southern extremity?

What is the northern cape?

What is the southern cape?

What is the eastern cape?

What is the western cape?

What island on the western coast?

What islands north of South America?

What islands southeast of S. America?

On what island was Alexan'der Sel'kirk left by his captain?

LESSON XVI.

Civil Divisions of South America.

| | | | | | | <i>Towns.</i> |
|--------------------------------------|---|--|-----------|---|---|--|
| Span'ish Dominions. | { | New Grana'da, | - | - | - | { Carthage'na, Pana'ma. |
| | | Peru', | - | - | - | { LI'MA, Truxillo, Guay'aquil', Qui'to. |
| | | Chi'li, | - | - | - | { ST. JA'GO OR } SANTIA'GO, } |
| | | Bu'enos Ayres, La Pla'ta or Par'aguay, | { - - - } | | | { BU'ENOS AYRES, San'ta Fe', Poto'si. |
| Por'tuguese Dominions. | { | Brazil', | - | - | - | { St. Sal'vador, Ri'o Janei'ro. |
| Span'ish, Por'tuguese, French. | { | Guia'na, | - | - | - | { Surinam', Cayenne. |
| Independent In'dian Nations. | { | Amazo'nia, Patago'nia. | | | | |

These divisions of South America have, within a few years, undergone considerable alteration; and, as the inhabitants are still at war among themselves, other changes will probably take place.

PRACTICAL QUESTIONS.

- In what part of South America is New Grana'da? Which is most northerly, St. Sal'vador or Ri'o Janei'ro?
Which way is Brazil' from Ter'ra Fir'ma? Between what two rivers is Guia'na?

Which is most westerly, Cayenne' or Surrinam?

What are the towns in New-Grana'da?

On which side of Da'rien are they?

What strait separates Terra del Fu'ego from Patagonia?

Which way is Par'aguay from Chi'li?

Which is most northerly, Valparai'so or St. Ja'go?

North of what island is Valdiv'ia?

Which is most northerly, St. Fe'lix or Ju'an Fernan'dez?

On what river are Bu'enos Ayres, Santa Fe' and Assump'tion?

In what part of Bu'enos Ayres is Poto'si?

In what part of it is Qui'to? (*pron. Ke'to.*)

Which is most northerly, Li'ma or Truxillo?

In what part of South America is Ama-zo'nia?

LESSON XVII.

Discovery and History of America.

In 982 the Norwegians discovered Greenland, and settled a colony there.

In 1003 they visited Lab'rador, or Newfoundland', and left a small colony, which soon perished.

The American continent is however generally considered as unknown to the civilized world till about three hundred years ago; and the honour of having discovered it is universally given to Chris'topher Colum'bus, a native of Gen'oa.

Colum'bus had many difficulties to encounter and surmount, before he could execute the arduous undertaking of discovering this country.

He was, of himself, unable to procure and equip vessels for so

long and dangerous a voyage. It therefore became necessary for him to obtain assistance.

He first applied to Gen'oa, his native country, then to Por'tugal, and afterwards to Spain, and to the king of England.

The scheme of Colum'bus was generally considered as visionary, and of course his applications were treated with coldness and neglect.

At length, however, after much solicitation, Isabel'la, the Spanish queen, listened to his request, and assisted him to equip three small vessels *only*, for the purpose of making new discoveries.

In 1492, Colum'bus, with his small, ill-appointed fleet, sailed

from a port in Spain in the Medi-
terra'nean sea through the strait
of Gibrál'tar, and thence westward

into the Atlan'tic ocean, which at
that time was, in a great measure,
unexplored and unknown.

PRACTICAL QUESTIONS.

How many years is it since the discovery
of America?

To whom is given the honour of having
discovered it?

To whom did he apply for assistance to
enable him to fit out a fleet?

How was his scheme generally consider-
ed?

Who at length granted him assistance?

From what port did he sail?

Through what strait, and into what ocean
did he direct his course?

LESSON XVIII.

The difficulties with which Col-
um'bus had to contend, did not end
with the equipment of his fleet.
The men in his service were in-
experienced and turbulent. Dur-
ing the voyage they became dis-
satisfied, and fearing they should
never be able to return to Europe,
they threatened the life of their
commander.

Colum'bus, with great prudence
and moderation composed their
disquietude, and encouraged their
perseverance, till on the morning
of the 12th of October, 1492, to
their great joy they discovered
land.

The land first discovered was
one of the West In'dian islands, a
little northward of Cu'ba, to which

Colum'bus gave the name of St
Salvador.

Colum'bus directed his course
southward, and discovered *Cu'ba*,
St. Domingo, and other islands,
and at length that part of the con-
tinent at the mouth of the river
Orinóco, in the northern part of
South America, which is called
Ter'ra Fir'ma.

Direction. Here the learner should be
assisted to trace the voyage of Colum'bus,
till he can read all the places mentioned
in it in their order from *Spain* to *Ter'ra*
Fir'ma by looking on the maps only.

1. Let him turn to the map of *Eu'rope*,
and there let him find *Spain*, the *Medi-*
terra'nean sea, and the strait of *Gibrál'tar*.

2. Let him turn to the map of the world,
and find the *Mediterra'nean sea*, the *At-*
lan'tic ocean, and the *West In'dies*, desig-
nated by W. I.

3. Let him turn to the map of North America, and there find the West Indian islands, *Cu'ba*, *St. Domin'go*, *Jama'ca*, *Por'to Ri'co*, and *South America*.

4. Then let him look on the map of South America, and find *Ter'ra Fir'ma*, and the river *Orin'o'co*.

PRACTICAL QUESTIONS

What difficulties attended Colum'bus after the equipment of his fleet?
Of what did his men become fearful during the voyage?
What did they threaten to do?

On the morning of what day, month, and year did they discover land?
What was first discovered?
What name did Colum'bus give it?

LESSON XIX.

Discovery and History continued.

Colum'bus found the islands and countries, which he discovered, inhabited by a race of men, very different in complexion and manners from those of the eastern continent.

Their persons were of common stature, straight, and of a dusky copper colour; their hair was long, straight, and black, floating loosely upon their shoulders, or bound in tresses round their heads.

They were at first shy and timid, but soon became familiar and friendly, and modestly approached the Spaniards to receive from them glass beads, and other toys, in exchange for cotton yarn, and provisions.

What most attracted the attention of Colum'bus and his companions, and most strongly excited their curiosity, were small plates of gold, which most of these newly discovered people wore as ornaments to their persons.

At first Colum'bus supposed, that the islands, which he had discovered, were a part of those that belonged to A'sia, and then known by the name of *In'dies*. He therefore gave these the same name, and accordingly called the native inhabitants *In'dians*.

But when the mistake was discovered, and it was ascertained that the islands of A'sia were on

opposite sides of the globe from these newly discovered islands, *these being west* of the meridian of London, were called *West Indies*, to distinguish them from the *East Indies*, which were *east* of the meridian of London.

The specimens of gold which were found among the natives of the New World, invited new adventurers from Europe to extend their discoveries in every direction. Among these, was one Amer'cus, a Florentine gentleman, who, on his return to Europe, published an account of his voyage, and so magnified his own exploits, as to make it appear, that he was the first discoverer of the New World, and thus induced all nations to call it *America*, after his own name.

The first interview of Colum-

bus with the native Americans, was friendly, and every thing was conducted to mutual satisfaction; but harmony and friendship did not long continue.

The injustice of the Spaniards towards the ignorant and innocent natives, soon produced a state of warfare; and the superiority of the Spaniards in the art of war, and in the means of carrying it on, enabled them soon to vanquish their enemies and to triumph over them.

The Spaniards were not content with conquest; they treated the poor Indians with cruel severity, and by their unreasonable impositions, drove them to despair; so that in some places, in the course of a few years, the population was almost destroyed.

PRACTICAL QUESTIONS.

What is said of the race of men, that Colum'bus found in the New World?
 What most attracted his attention?
 What islands did Colum'bus suppose those were, which he had discovered?
 Why were they called *West Indies*?

What invited adventurers from Europe to the New World?
 Why was this country called *America*?
 What is said of the first interview of Colum'bus with the natives?
 What soon produced a state of warfare?
 How did the Spaniards treat the natives?

LESSON XX.

Discovery and History Continued.

Inflamed with the love of gold, which the New World produced in abundance, the Spaniards extended their discoveries, and their depredations on the innocent natives; so that in the course of about 10 or 12 years, the greater part of the eastern coast from Florida southward, became known.

In 1513 they crossed the isthmus of Darien, and discovered the great Pacific ocean; and for the first time ascertained, that America was not a part of Asia, as till then had been supposed.

The great and powerful empire of Mexico remained unknown to the Spaniards, till 1519, when Cortez, a bold and daring soldier, undertook the conquest of it.

With an army of about 6 hundred only, he marched into the heart of this vast empire, whose population exceeded a million of inhabitants, and in about two years reduced it to subjection.

In 1526 Pizarro visited the rich empire of Peru in South America.

In 1530, with not more than 2 hundred men, Pizarro invaded this powerful empire, which was more than 15 hundred miles in extent.

In 10 years, this empire, notwithstanding its extent and population, was subdued by Pizarro, and divided among his followers.

In order the more easily to conquer the Peruvians, Pizarro, at a friendly interview with the Inca or emperor, treacherously seized his person, and put him in close confinement.

The captivity of the unfortunate monarch, and the perfidy of those whom he had regarded no otherwise than friends, threw him into a state of the utmost dejection and despair. But recollecting the insatiable avidity of the Spaniards for gold, he offered to purchase his liberty.

The room in which he was confined was 22 feet in length, and 16 in breadth. This he engaged to fill with vessels of gold as high as he could reach, on condition of being released.

The proposal being instantly accepted, the gold was collected, and Pizar'ro and his followers divided it among them; but instead of releasing the *Inca* according to agreement, they cruelly put him to death.

But the enjoyment of this ill-

gotten treasure was of short duration. After having conquered the Peruvians, the Spaniards quarrelled among themselves; Pizar'ro was assassinated in his palace, and anarchy and civil war prevailed through the empire.

PRACTICAL QUESTIONS.

Who was the conqueror of Mexico?
Of how many men did his army consist?
How many years was he in conquering it?
Who was the conqueror of Peru?
What was the extent of the Peruvian empire?
How long was Pizar'ro in conquering it?
What did he do, that he might the more

easily conquer it?
What did the *Inco* do in order to regain his liberty?
How did they treat him, after he had fulfilled his engagement?
What became of Pizar'ro?
What was afterwards the state of the Peruvian empire?

LESSON XXI.

In North America the progress of discovery and settlement was more slow than it was in South America, there being no mines of gold and silver to invite strangers into its more inhospitable climate.

But during the time which elapsed between 1500 and 1600, the coast of North America, from the gulf of St. Lawrence to Florida, was generally explored; and within about fifty years after, the United States, on the coast of the Atlantic, were mostly settled.

Although that part of North America, which is called the United States, and in which we live, was last discovered and settled, it has become the most important part of all America.

These United States, which are now so populous and flourishing, were about two hundred years ago, in a state of nature, wild and uncultivated, and inhabited by wild beasts, and savage men.

The first adventurers who settled in this part of the country, had

innumerable difficulties to encounter, and hardships to bear. The climate, especially in the northern part, was severe, and at that time unhealthy; the earth did not, without hard labour, produce the necessities of life; and the native Indians were treacherous and hostile. But patient industry, good principles, and the consolations of religion, supported them under their trials, and enabled them to persevere in laying the foundation of a great nation.

The United States, being principally settled by adventurers from Great Britain, were first known by the name of the *British provinces*; and were, of course, subject to the laws and government of England.

In 1776, when the people had become numerous and powerful, feeling themselves oppressed by

the restraints of the British government, they refused longer subjection, and declared themselves a free and independent people.

A distressing war succeeded, which continued six or seven years, with various success; after which the English government allowed the independence of the provinces, who declared themselves to be a separate government, under the title of "The United States of America."

These states have now become a great nation, distinguished by their industry and improvements, and by their commerce and agriculture.

South America is best known for its gold and silver mines; the West Indies, for their productions of sugar, coffee, cotton, indigo, oranges, lemons, and other delicious fruits.

PRACTICAL QUESTIONS.

Which is the most important part of all America?

What was the condition of the United States about two hundred years ago?

What difficulties had the first settlers to encounter?

By whom were the United States principally settled?

What were the United States first called?

When did the people declare themselves free and independent?

How long did the war continue between

England and the Provinces?
For what are the United States now distinguished?

For what is South America best known?
For what are the West Indies best known?

LESSON XXII.

Europe.

Europe is the smallest grand division of the earth; but it is distinguished by the cultivation of its soil, and by the improvement of its inhabitants in science, arts, and laws.

Europe is bounded

| | | | | | |
|-------------|---|------------------------------|---|---|--------------|
| North by | - | - | - | - | _____ ocean. |
| South by | — | sea, which separates it from | | | _____ |
| East by | - | - | - | - | _____ |
| and West by | - | - | - | - | _____ ocean. |

Natural Divisions of Europe.

Mountains. The Alps, the Pyrenees, and the Ural mountains.

The Alps are the highest and most celebrated mountains of Europe. Their summits are nearly three miles above the surface of the sea, and crowned with perpetual snows, whilst their base is encompassed with vineyards, cultivated fields, and verdant vales. They are remarkable for deep chasms, lofty precipices, and for wild and romantic scenery. The highest and most remarkable peaks of the Alps, are Mount Blanc, Mount Ro'sa, and St. Gothard.

There are in Europe three noted volcanic mountains, Mount Et'na in Sic'ily, Mount

Vesu'vius in It'aly, and Mount Hec'la in Ice'land. From the tops of these mountains frequently issue clouds of smoke, attended with violent explosions of red hot stones; and from their *craters* or mouths flow torrents of liquid fire, called *lava*, which pour down the sides of the mountains, and sometimes overwhelm vineyards, fields, and villages, to the distance of thirty miles.

Rivers. The Wol'ga, the Don, the Dan'u'be, and the Rhone.

Seas, Gulfs, Straits, &c. The Mediterranean Sea, the Archipel'ago, the Black Sea, the Sea of

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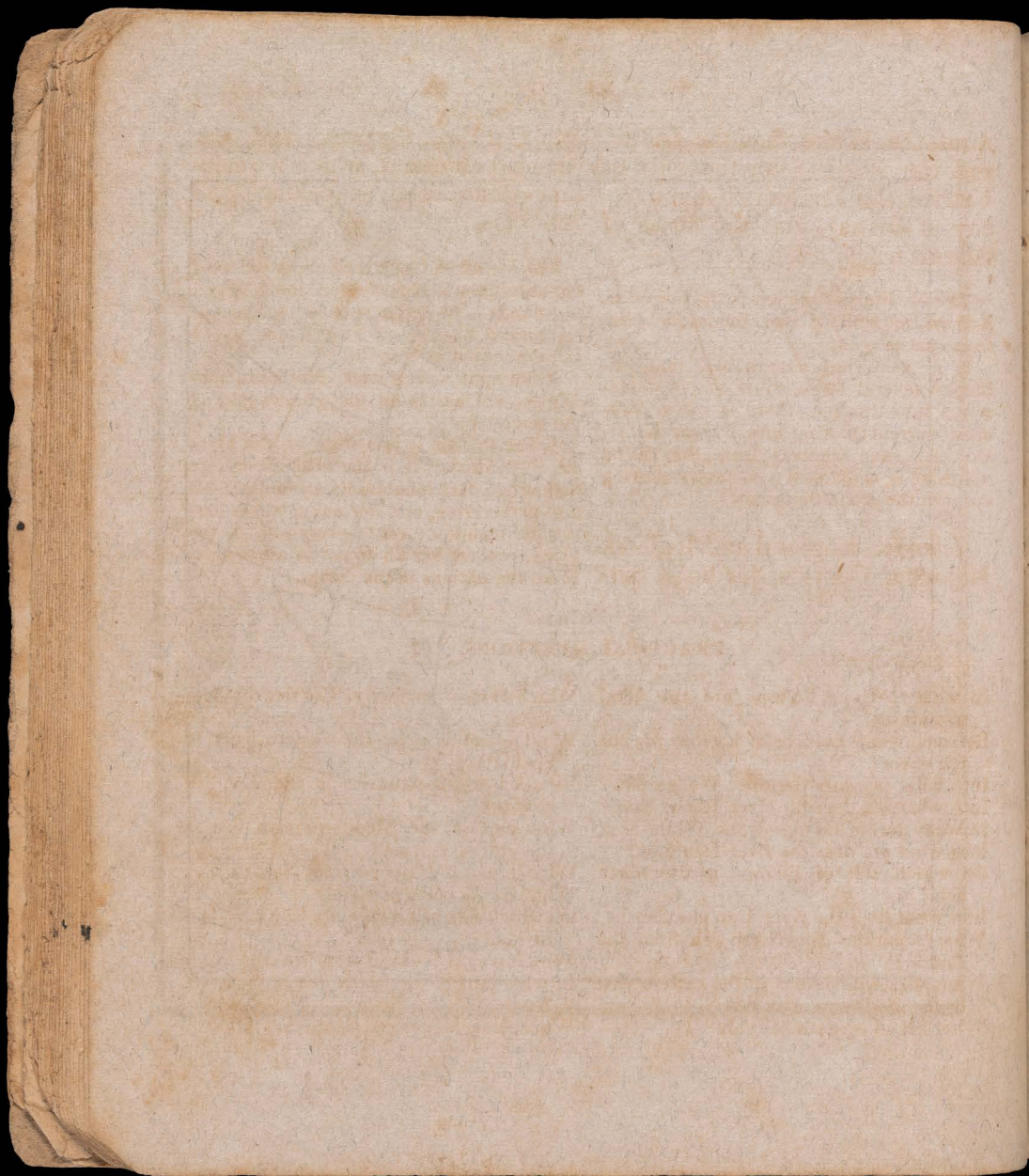
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A'zof, the White Sea, the Bal'tic, and the North Sea; the gulf of Venice, the English channel, the bay of Biscay, and the strait of Gibraltar.

The Mediterranean sea is the largest in Europe, extending two thousand miles from east to west.

It is somewhat remarkable, that, although several large rivers empty themselves into this sea, there is still a constant current flowing into it from the Atlantic ocean; whereas from the Baltic sea there is a current constantly flowing out into the Atlantic ocean.

Islands. England and Ireland, Major'ca, Corsica, Sardinia, Sic-

ily, Can'dia, Cyprus, and the island of Iceland, which is sometimes considered, as belonging to America.

The island of Great Britain is the most remarkable and important of the European islands. Its extent is between five and six hundred miles in length, and about three hundred in breadth.

It comprises England, Scotland, and Wales, whence came the greater part of our ancestors.

Great Britain is in a state of the highest cultivation. It is the seat of science and arts. Her inhabitants are industrious and persevering, and her navy, which carries her manufactures to every part of the globe, renders her an object of admiration to all the nations of the earth.

PRACTICAL QUESTIONS.

In what part of Europe are the Ural mountains?

Between what divisions of Europe are the Pyrenees?

Into what sea does the river Wolga flow?

Into what sea does the river Rhone flow?

In what part of Europe is the White Sea?

Into what sea does the river Don flow?

On which side of Europe is the North Sea?

Into what does the river Danube flow?

What separates the North Sea from the Baltic?

What two islands are in the eastern part of the Mediterranean Sea?

What island is south of Italy?

Which is most northerly, Corsica or Sardinia?

What island is near the eastern part of Spain?

Between what countries is the English channel?

What part of the Mediterranean Sea is the gulf of Venice?

What separates Greece from Asia?

What bay is north of Spain?

On which side of Europe are England and Ireland?

Which way is Iceland from Ireland?

In what part of the Black Sea is the sea of Azof?

What strait is between Spain and Africa?

LESSON XXIII.

Civil Divisions of Europe.

Europe is considered under cold and severe; in the middle, three divisions for the purpose of generally temperate; and in the better distinguishing the situation southern, so mild and moderate, of the countries, and the variety that winter is scarcely known, in the temperature of its climate, and the heat of summer is seldom which, in the northern part, is intense.

Europe is divided into the following countries.

| | | <i>Countries.</i> | <i>Capitals or Towns</i> |
|-------------------------|------------|---|--|
| Northern Division, } | containing | Scot'land, Den'mark, Nor'way, Swe'den, Lap'land, and the Northern part of Rus'sia. } | Pe'tersburg, |
| | | Ire'land, Eng'land, Hol'land, France, Swit'zerland, Ger'many, Prus'sia, Po'land, Aus'tria, Hun'gary, and the Southern part of Rus'sia. } | Par'is Mos'cow, As'tracan. |
| Middle Division, } | | | |

| | | | |
|---------------------------|-------|--|---------|
| Southern } Division. } | - - - | { Portugal, Spain, Italy, Turkey. | Madrid. |
|---------------------------|-------|--|---------|

PRACTICAL QUESTIONS.

What is the size of Europe?
 For what is Europe distinguished?
 Why is Europe considered under three divisions?
 What is the temperature of the northern division?
 What is the temperature of the middle division?
 What is the temperature of the southern division?
 Is Lapland in the northern or southern division of Europe?
 Which way is Italy from Norway?
 Which is most northerly, Russia or Turkey?
 In what part of Turkey is Greece?
 What gulf separates Greece and Illyricum from Italy?
 On which side of Europe is France?
 Which is most northerly, Petersburg or Moscow?
 What is the capital of Spain?

What are the mountains between Italy and Switzerland, (denoted on the map by Switz.?)
 Which is the most westerly, Holland or Poland?
 What sea separates Prussia from Sweden?
 Which is most northerly, Austria or Hungary?
 Which is most easterly, England or Ireland?
 What is the capital of France?
 Which is the most northerly, Germany or Portugal?
 What four countries are in the southern division of Europe?
 Which part of the island of Great Britain is the most northerly, England or Scotland?
 What six countries are named as being in the northern division of Europe?
 What are the chief towns in Russia?

LESSON XXIV.

Although Europe is the smallest grand division of the earth, it is, on many accounts, the most interesting and important.

It is almost wholly situated in

the temperate zone, so that it is exempt from the burning heat of Africa, and but a small portion of it experiences the rigorous cold of the frigid zone.

The winters in Nor'way, Sweden, Lap'land, and the northern part of Rus'sia, are indeed long and severe, but the summers are so long and warm as to give rapid growth to vegetation, and to bring to maturity the fruits of the earth.

The middle division of Eu'rope is a pleasant region, having the regular vicissitudes of summer and winter, seed time and harvest; and under skilful cultivation produces bountifully the necessaries of life.

In the southern division of Eu'rope, which comprises Portugal, Spain, It'aly, and Turkey, the climate is still more pleasant and delightful. The severity of winter is not known, and the intense heat of summer is scarcely felt. The soil is rich and fertile, and produces in abundance, not only the necessaries and comforts of life, but its luxuries and delights.

Besides various kinds of grain, there are among the productions of the southern part of Eu'rope, oranges, figs, cotton, silk, honey, the finest wool, and the most delicious wines.

When Eu'rope was first settled is not at the present day exactly

known. It is generally supposed that the inhabitants were the descendants of Ja'pheth, the eldest son of No'ah.

Among the rude nations which once overspread this fair portion of the globe, Greece and Rome early distinguished themselves. They burst the bands of barbarism, and commenced the work of civilization and improvement. They introduced letters; they enacted laws; they cultivated the sciences and the arts; and have acquired an unperishable name by their skill in poetry, painting, sculpture, and architecture.

Eu'rope has, in modern times, been the seat of literature, science, and useful inventions.

To Eu'rope we are to look for the invention of the art of printing, which is so necessary to the improvement of our minds;—for the invention of the mariners' compass, by means of which we are conducted in safety through the pathless ocean, to every region of the earth;—and for the telescope and microscope, which seem almost to enable us to bring down, to our immediate inspection, the

Heavenly bodies, which are millions of miles distant from us; and to discover myriads of living creatures, which are many thousand times too small to be seen with the naked eye.

It was in Eu'rope that the Christian religion found an asylum, after her banishment from the Holy Land. And although for ages she seemed to be clothed in sackcloth

and mourning, she is now evidently putting on her robes of strength, and going forth to bless the nations.

It is to Eu'rope we are to look for our ancestry. Thence came our fathers; and thence are the sciences, arts, and religion, which so highly distinguish us as a people among the nations of the earth.

PRACTICAL QUESTIONS.

In what zone is Eu'rope situated?

What are the winters and summers in the northern part?

What is said of the middle division of Eu'rope?

What countries are comprised in the southern division of Eu'rope?

What are comprised in the northern division?

What is said of the severity of winter in the southern division?

What is said of the heat of summer?

What is said of the soil of the southern part of Eu'rope?

What are some of the particular productions?

Who is it supposed were the first inhabit-

ants of Eu'rope?

What nations first distinguished themselves?

What did they introduce?

What did they cultivate?

By what did they acquire an unperishable name?

What has Eu'rope in modern times been the seat of?

What inventions originated in Eu'rope?

Of what use is the mariners' compass?

Of what use are the telescope and microscope?

What is said of the Christian religion in Eu'rope?

From what part of the world came our forefathers?

LESSON XXV.

A s i a.

A'sia is the largest grand division of the earth, except America. Its extent from east to west is be-

tween four and five thousand miles, and nearly the same from north to south.

Asia is bounded

| | | | | |
|--------------|---|---|---|----------|
| North by the | - | - | - | — ocean, |
| South by the | - | - | - | — ocean, |
| East by the | - | - | - | — ocean, |
| and West by | - | - | - | — |

Natural Divisions of Asia.

Mountains. The principal mountains of A'sia are Tau'rus, Cau'ca'sus, and Ima'us.

These mountains are broken into numerous branches and peaks, and known by various names.

Some of the highest points of mount Ima'us, in Thibet', rise to the astonishing height of nearly six miles, far surpassing the height of any other mountains in the known world.

The mountains in Tur'key and Ara'bia, and those round about Jeru'salem, although not remarkably high, are celebrated in sacred history. In the Bible we read of mount Ar'arat, Si'nai, Pis'gah, E'phraim, Ger'izim, Gil'boa, Ta'bor, Her'mon, and Cal'vary; the mountains of Leb'anon, Gil'ead, the mount of Ol'ives, and numerous others. These were all within the com-

pass of Ara'bia, Tur'key, and the countries southwest of the Cas'pian sea.

Seas and Lakes. The Mediter'ra'nean sea, the Black sea, the Cas'pian sea, the sea of A'ral, the Red sea, the Ara'bian sea, the bay of Bengal', the Chinese' sea, the Yellow sea, and the sea of O'kotsk.

Straits. The strait of Ba'bel-man'del, and Bher'ing's strait.

The Red sea is memorable for the passage of the Is'raelites through the northern part of it on dry land, and for its overwhelming Pha'raoh and all his host, so that they were drowned in the midst of it. It was in the Mediter'ra'nean sea, that St. Paul suffered shipwreck in his memorable voyage to Rome, in consequence of his adherence to the Christian religion.

PRACTICAL QUESTIONS.

How is A'sia bounded?

How large is A'sia?

What are some of the mountains?

What is their height in Thibet'?

What are the two first mountains, that are mentioned, of which we read in the Bible?

On which side of A'sia are the Black, the Mediter'ra'nean, and the Red seas?

Which of these three seas is most northerly?

What strait is connected with the Red sea?

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In what part of A'sia is Bher'ing's strait?
Which way from A'sia are the Chinese'
and Ara'bian seas?
What bay is between them?
Which is the most northerly, the sea of

O'kotsk or the Yellow sea?
What sea is between the Black sea and
A'ral sea?
For what is the Red sea remarkable?
In what sea was St. Paul cast away?

LESSON XXVI.

Natural Divisions of Asia continued.

Rivers. The Wol'ga, Ti'gris, Indus, Gan'ges, Ki'an-Ku', Ho'-ang'-Ho', and the river A'mour.

The river *Euphra'tes*, the name of which could not be given on the map, is one of the most celebrated in A'sia. It is seen northeast of Jeru'salem. It unites with the Ti'gris near its mouth, and flows into the Per'sian gulf southwest of Per'sia.

The famous city of Bab'ylon, of which we read in the Bible, and whither the Jews were once carried into captivity, was situated on the banks of this river; and near its mouth, it is supposed, was the garden of E'den, where our first parents were placed, and whence, for their eating the forbidden fruit, they were driven to procure their bread by the sweat of their brow.

The river *Iu'dus* is remarkable for having given name to the extensive country, which lies between it and Chi'na and south of Thibet', and to the numerous Asiatic islands, and the inhabitants of all those countries; and thence also to the islands between North and South America, and to all the original inhabitants of this country.

The *Gan'ges* is celebrated for the great veneration in which its waters are held

by the superstitious inhabitants of In'dia. These ignorant people believe, that this river originates in heaven, that it flows from the foot of *Bes'chan*, the Preserving Deity, and thence through the regions of Hindos'tan to fertilize and bless the country.

The inhabitants annually flock by thousands from every part of the country to the banks of this river, to pay their devotions, and wash in its waters, which they believe purify from all sin.

Islands. Ceylon', Suma'tra, Ja'va, Bor'neo, Phil'ippine islands, For'mo'sa, and Japan'.

Of these islands, Suma'tra, Ja'va, Bor'neo, the Phil'ippine islands, and many other smaller ones, not here mentioned, compose what is generally called the *Eastern Archipel'ago*.

Bor'neo is considered the largest island in the world, being nearly a thousand miles long, and six hundred broad.

The productions of the Asiatic islands are numerous and important, both to Europe and America, consisting of cotton, coffee, sugar, pepper, spice, and various other articles.

PRACTICAL QUESTIONS.

- In what part of A'sia were the rivers Euphrates and Tigris?
 Into what does the river Wol'ga flow?
 What two rivers in Hindos'tan?
 What river in Tar'tary?
 What two rivers in Chi'na?
 On what river was Bab'ylon situated?
 What is supposed to have been near the mouth of this river?
 For what is the river In'dus remarkable?
 For what is the Gan'ges celebrated?
- Why do the inhabitants of In'dia or Hindos'tan annually visit it?
 What four islands south of A'sia?
 Which way is Ja'va from Bor'neo?
 What two islands east of Bor'neo and the Chinese sea?
 Which way from A'sia are the Japan islands?
 Where is No'va Zem'bla?
 What are some of the productions of the Asiatic islands?

LESSON XXVII.

New Holland or Australasia.

New Holland, although surrounded by water, is of such vast extent, as to entitle it to the name of a continent, and together with the adjacent islands of New Guinea, New Hebrides, New Zealand, and Van Diemen's Land, form what is frequently called *Australasia*, or South A'sia.

It is but a few years since the country of New Holland has much attracted the attention of Europeans, and it is still but imperfectly known.

The original inhabitants are represented as being in a most deplorable state of rudeness and ig-

norance. They are of low stature and ill made; their limbs are straight and slender, their heads are large, their complexion dark, their brows prominent and frowning, and their eye-lids half closed.

The men increase their native deformity by wearing long, bushy beards, and a white bone or reed thrust through the cartilage, or gristly part of their nose, and by covering their bodies with fish oil, and painting their faces with red and white clay.

These ignorant people have no ideas of God or religion, although an obscure notion of a future state.

They live almost without shelter, and without clothes, and subsist miserably upon fish, herbs, and roots.

The English have established a colony on the eastern shore of New Holland, whither criminals, condemned to banishment from their own country, are transported for life.

Among the animals peculiar to

this country, is the kangooroo, which is a shy, timid creature, that runs, or rather bounds, with great swiftness on its hind legs, its fore ones being very short, and used only in feeding itself. The native dogs are either black, or white, tinged with red. They never bark, are exceedingly fierce, and cannot be made gentle and familiar.

Polynesia.

Polyne'sia, which signifies *many islands*, is a name given to the numerous islands in the Pacific ocean, between A'sia and Amer'ica, but at some distance from both.

The principal, which are to be found on the maps in this book, are the Pelew', the Sand'wich, the Society, and the Friendly islands.

The native inhabitants of the Pelew' islands, although uncivilized, are delicate in their sentiments, and friendly. When the Europe'ans first visited them, they were

so entirely ignorant of the use of clothes, that they apprehended they grew to the body, and were greatly surprised to see that the hat could be raised from the head.

The inhabitants of all the islands in the Pacific ocean are uncivilized and pagan. Some of them discover traits of amiable dispositions, others are savage and ferocious. Some are not only guilty of sacrificing human beings, but they even feed on the sacrifices they have slain.

PRACTICAL QUESTIONS.

What name is given to New Hol'land and the adjacent islands?

How is New Hol'land known?

In what state are the inhabitants?

How do the men increase their natural deformity?

What is their religion?
 How do they live and subsist?
 Who are transported to this country by the
 Eng^lish?
 What animals are mentioned?
 What does Polyne'sia signify?
 What is it the name of?

What is said of the inhabitants of the Pe-
 lew' islands?
 What is said of their ignorance?
 What is said of the inhabitants of the
 islands in the Pacific ocean?
 What do they sacrifice?

LESSON XXVIII.

Civil Divisions of Asia.

| | Countries. | Chief Towns. |
|--|--|---|
| Northern Division, } Middle Division, } | - Rus'sia, - - - Tar'tary, - - { Tur'key, - Ara'bia, Per'sia, Hidos'tan, - Bir'man Empire, { Ch'na, - - | { As'tracan. (<i>See map of Eu'rope.</i>) Tobolsk'. Samar'cand. Jeru'salem. Calcut'ta. { Pe'kin, Nan'kin, Canton'. |

The Rus'sian empire, in A'sia, includes Kamtschat'ca, what was anciently called Sibéria, and a considerable part of Tar'tary.

The climate of Rus'sia in A'sia is, in general, especially in the northern part, extremely cold and inhospitable; and the soil yields little or nothing to cultivation.

The inhabitants are but little civilized; they hunt the beasts of the field, and clothe themselves with their skins. The south-

ern part of Rus'sia, in A'sia, is more kind and genial.

Tar'tary, the central part of A'sia, is but imperfectly known. The inhabitants of this extensive country are divided into clans or tribes, who live an unsettled life, wandering about in search of pasturage for their cattle.

The inhabitants of the southern part of Tar'tary approach nearer to regular life.

Samar'cand is a large populous city, and the residence of a Tar'tar prince. There is here an academy of the sciences, which is held in high estimation by the Mahom'etans of this part of the country.

The southern part of A'sia com-

prises several countries, highly important, both as it respects their antiquity and modern state. Its climate is warm, its productions abundant, and its population incredibly numerous.

PRACTICAL QUESTIONS.

What is the northern division of A'sia?

On what river and sea is As'tracan?

Which way from the Cas'pian sea is Tobolsk'?

In what country is Jeru'salem?

What is the capital of Hindos'tan?

In what part of Chi'na is Canton'?

Which is most northerly, Pe'kin or Nan'kin?

In what part of the Rus'sian Empire in A'sia is Kam'schat'ca?

What is the climate of Rus'sia in A'sia?

What do the inhabitants do for a living?

What is said of the population of Tar'tary?

Where does the Tar'tar prince reside?

What is there in Samar'cand, that the Mahom'etans hold in high estimation?

LESSON XXIX.

History of Asia.

A'sia is that part of the world, which first appears in the pages of history. It seems to have been designated by God as the theatre, on which to display his great and mighty acts.

When God had created man, he placed him in this part of our world in the garden of E'den, which, as before observed, it is supposed, was somewhere near the mouth of the rivers Ti'gris and Euphra'tes.

Here our first parents, Ad'am and Eve, transgressed the divine command, and incurred the displeasure of God, which

"Brought death into the world,
And all our wo."

Here lived No'ah, a preacher of righteousness, who, with his family, was miraculously saved in the ark from the waters of the flood, which overwhelmed the wicked in a general ruin.

In A'sia lived the twelve patriarchs, from whom descended the Jews, a nation, for many years, peculiarly favoured of God by divine instructions, revelations, and miraculous preservations; but who, for these eighteen hundred years, seem to have been cast off of God, and abandoned to that wretched state, which more than three thousand years ago was, in Leviticus 26, predicted should be their condition, if they would not hearken unto God, but despised his statutes.

It was on Mount S'inai, a mountain of A'sia on the confines of Africa, that God appeared in awful majesty to deliver the Law to Moses. (*For this mountain, see the map of Africa.*)

It was in A'sia, that Jesus Christ appeared on a mission of mercy from heaven, to instruct, redeem, and save the faithful and believing of all nations. Here he established his religion, and hence the light of his gospel has been diffused among the nations of the earth.

It was in A'sia, that Mahom'et, the celebrated impostor, appeared

about six hundred years after our Saviour, and established a new but false religion.

The religion of Jesus Christ consists in love, joy, peace, long-suffering, gentleness, goodness, faith, meekness, and temperance; that of Mahom'et consists in impurity, violence, plunder, blood, and war. Two such extremes cannot be true. Let us be grateful, that we live in a country, where we are taught the blessed religion of the gospel of Jesus Christ.

Notwithstanding the violence and falsehood of the Mahom'etan religion, it has, by force of arms, been extended more widely through the nations of the earth, than the Christian religion has hitherto been; yet we are assured it will come to nought, and that the religion of Jesus will prevail over all opposition.

A'sia, at the present day, as it always has been, may justly be considered as the seat of idolatry and superstition. Here false religion reigns in all her cruel forms, stifling the feelings of natural affection, torturing and destroying the human race.

It is to be hoped, that the labours of missionaries of the gospel, sent from Europe and America to instruct and reform this ignorant people, may be attended with the most happy effects.

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PRACTICAL QUESTIONS.

- Of what part of the world have we the first historical knowledge? Who appeared in A'sia and established a false religion?
- For what does A'sia seem designated by God? How many years after Jesus Christ was Mahom'et?
- Where is it supposed the garden of E'den was? In what does the Christian religion consist?
- What is said of No'ah and his family? In what does the religion of Mahom'et consist?
- What is said of the nation of the Jews for many years past? Whose religion prevails most extensively, that of Mahom'et, or that of Jesus Christ?
- What has been their condition for 1800 years? What has caused it to spread so widely?
- What is said of Mount Si'nai? What may A'sia be considered at the present day?
- On what mission did Jesus Christ appear? What is said of religion in A'sia?

LESSON XXX.

Africa.

Africa is a vast peninsula, united across from the Red sea to the ed to A'sia by the isthmus of Suez, Mediterranea'n.

which is but about sixty miles

Africa is bounded

North by — sea, which separates it from —

South it terminates in the cape of —
about 35° south latitude.

It is bounded

East by the — — — — — ocean,
and West by the — — — — — ocean.

Natural Divisions of Africa.

Mountains. The mountains of the Moon in Abyssinia, and Mount Atlas, which extends from Morocco to Egypt. (*This mountain is not on the map, but is situated where the word Barbary is.*)

Mount Atlas is famous in ancient story. In former times, when people imagined what was not true, it is said, that one of the kings of this part of Africa, was called Atlas; that by a wonderful circumstance he was changed into a stone, and became this great mountain, which was so high, that the heavens rested on its top. The origin of this fable probably is, that king Atlas was fond of astronomy, and often retired to the top of this mountain to view the heavenly bodies, and that after his death, it was called by his name.

The Atlantic ocean derives its name from Mount Atlas.

Rivers. The Nile, the Niger, the Senegal, and Gambia.

The Nile is a celebrated river, and very important to that part of Africa, through which it runs, especially to Egypt.

It is entirely to the annual overflowings of this river, that the Egyptians are indebted for the produce of their lands, as rain in this country is seldom known.

It was by the river Nile, that Moses, when an infant child, was, in consequence of Pharaoh's cruel command, exposed in a little basket of bulrushes to perish; but God having designed him for a deliverer of his people, he was providentially saved, brought up by Pharaoh's daughter, and having come to years of maturity, appeared as a deliverer of the Jews from bondage, after having performed signs and wonders in the land of Egypt. *Exodus ii. and the following chapters.*

The Niger rises in the western part of Africa, and flows east; it is supposed it loses itself in the swamps or deserts of sand in the interior.

The Gambia and Senegal take their rise in the interior of Africa, overflow their banks like the Nile, and fall into the Atlantic ocean north of Sierra Leona.

PRACTICAL QUESTIONS.

How is Africa bounded?
 What are the mountains of Africa?
 In what part of Africa are the mountains of the Moon?
 What is said of Mount Atlas?
 What did the Atlantic ocean derive its name from?
 What are the principal rivers in Africa?

To what are the Egyptians indebted for the produce of their lands?
 What is said of Moses in relation to this river?
 What is said of the river Niger?
 What is said of the rivers Gambia and Senegal?

LESSON XXXI.

Natural Divisions of Africa continued

Seas, &c. The Mediterra'nean sea, the Red sea, the strait of Babelman'del, and the strait of Gibraltar.

Islands. The African islands are, Madagas'car, Com'oro, the Isle of France, Bour'bon, Madei'ra, Cana'ry, Cape Verd, St. Mat'thew's, St. Thom'as, Ascen'sion, and St. Hel'ena.

Madagas'car is one of the largest and finest islands in the world. Its productions are rich and numerous; some of which are flax, sugar canes, co'coa, tobacco, indigo, pepper, gold, and precious stones.

The island of Madei'ra is celebrated for its excellent wines.

The Canary islands are remarkable for the Peak of Ten'eriffe, a mountain which rises very abruptly from the ocean to the height of about three miles.

St. Hel'ena is a small island about twenty miles in circumference. It rises like a vast rock from the ocean; the sides of it are so steep and craggy, that it is inaccessible, excepting on one side.

St. Hel'ena is valuable as a place of refreshment for Eng'lish ships in their In'dia voyages; and it has recently become celebrated by Napo'leon Bon'aparte's having been confined to it, for several years before his death.

Capes. Cape Verd, Cape of Good Hope, and Cape Gar'defan'.

Among the natural features of Africa, may be mentioned its immense deserts of sand, which abound in this part of the world, and may perhaps occupy one half of it. The Great Desert of Za'ara alone, extends between two and three thousand miles east and west, and nearly a thousand north and south. The face of this desert appears like a vast ocean of sand, occasionally interrupted by small elevations, which appear like islands. These afford some little refreshment to the weary traveller, who attempts to traverse this desert, and a scanty support to the few savage A'rabs and Mahom'etans, who dare to inhabit them.

The air is hot and unhealty; and what adds to the horrors of

this inhospitable country, is, the numerous lions, tigers, wolves and other ferocious animals, which prowl about the desert in search of prey.

PRACTICAL QUESTIONS.

- | | |
|---|---|
| What seas are contiguous to Africa? | What islands south of the gulf of Guinea? |
| What strait connects the Red sea with the Indian ocean? | What is said of St. Helena? |
| What strait connects the Mediterranean sea with the Atlantic ocean? | For what is it valuable? |
| What islands north of Madagascar? | What has recently rendered it celebrated? |
| What two islands east of Madagascar? | What is mentioned as one of the natural features of Africa? |
| What islands west of Morocco? | What is the extent of the Great Desert? |
| What are some of the productions of Madagascar? | Who inhabits some of the islands of this desert? |
| For what is Madeira celebrated? | What adds to the horrors of this inhospitable country? |
| For what is one of the Canaries remarkable? | |

LESSON XXXII.

Civil Divisions of Africa.

Barbary States, - - - - -

Egypt, - - - - -

Subdivisions.

{ Moroc'co.

{ Algiers'.

{ Tunis.

{ Trip'oli.

{ Bar'ca.

{ Cities.

{ Cai'ro.

{ Alexan'dria.

{ Thēbes.

| | | <i>Subdivisions.</i> | |
|----------------|-----------|----------------------|-------------------|
| Ethio'pia, | - - - | Nu'bia, - - | { Senna'ar. |
| | | Abyssin'ia. | { Dongo'la. |
| Eastern coast, | - - - - - | | { A'del. |
| | | | { A'jan. |
| | | | { Zan'guebar'. |
| | | | { Querim'ba. |
| | | | { Mozambique'. |
| Upper Guin'ea, | - - - - - | | { Sofa'la. |
| | | | { Sa'bia. |
| | | | { Na'tal |
| | | | { Sier'ra Leo'na. |
| | | | { Guin'ea. |
| Lower Guin'ea, | - - - - - | | { Be'nin. |
| | | | { Loan'go. |
| | | | { Con'go. |
| | | | { Ango'la. |
| | | | { Bengue'la. |

Bar'bary or the northern Mahom'etan states, comprise the best and most fertile part of Africa, except Egypt, and produce in great abundance, dates, figs, grapes, olives, almonds, oranges, lemons, and other delicious fruits; besides various kinds of grain; but the ignorant and inhuman inhabitants, under the debasing influence of the Mahom'etan religion, disgrace this fine country, and

render it a terror to the Christian world.

The empire or kingdom of Morocco consists of several small kingdoms, which were formerly independent, and constantly at variance with each other.

The Moors, who inhabit the larger towns, are somewhat civilized; but those, who live in the mountainous parts, are fierce and obstinate, and defy all restraints of government.

Algiers' is a very delightful country in its soil and climate; but the inhabitants have long been remarkable for their piracies, and for their cruelty to Christian slaves.

It is somewhat remarkable, that while

the Europe'ans and America'ns are engaged in the inhuman traffic of slaves in the western parts of Africa, to obtain a supply for the planters in the West Indies, and the United States, thousands of Europe'ans and America'ns should, at the same time, be made slaves, and confined to hard bondage in the northern part of Africa.

PRACTICAL QUESTIONS.

In what part of Africa is Bar'bary?

Which of the Bar'bary states is nearest E'gypt?

Which is the most westerly?

Which way is E'gypt from Algiers'?

What are the cities of E'gypt?

Which is most northerly?

What river in E'gypt?

What sea does it flow into?

In what mountains does the Nile take its rise?

Which is most northerly, Nu'bia or Abyssin'ia?

Which is most southerly, A'del and A'jan or Zanguebar'?

What lake is between Querim'ba and

Mozambique'?

What places between Sofa'la and the English colony?

Which is most southerly, Con'go or Loan'go?

What are the coasts of Guin'ea?

What two rivers north of Sier'ra Leo'na?

What is said of the Mahom'etan states?

What do they produce?

What is said of the inhabitants?

What is their religion?

What is said of the Moors who inhabit the large towns?

What is said of Algiers'?

For what are the inhabitants remarkable?

LESSON XXXIII.

E'gypt was celebrated in ancient times, and is still an interesting country. It has always been remarkable for its fertility, so that in ancient times, when there was scarcity in all lands, there was bread in E'gypt.

This is the place we read of in the story of Joseph and his brethren; and where Pha'raoh hardened his heart by disregarding the judgments of God.

E'gypt has the honour of giving birth to the arts and sciences; many evidences of which still remain, such as

The pyr'amids, which are vast piles of regular stone, so large, as to cover eight or

ten acres of land, and five or six hundred feet high ;—

The lab'yrinth, which is a vast marble building under ground, consisting of twelve palaces and three thousand houses, constructed with so many winding passages, that it is almost impossible for a person within, to find his way out of it ;—

The cat'acombs, which are extensive caverns for burial of the embalmed bodies of the Egypt'ians, commonly called *mummies*. Some of these bodies are said to be perfectly entire, although they have been kept two or three thousand years.

There are other vast works of the Egypt'ians, such as temples, palaces, canals, now in ruins, which evidently show the skill and labour of this ancient people.

In the course of ages, Egypt has experienced many changes, and served various and hard masters. It is now under the government of Turkey, and the Mahom'-etan religion.

Abyssinia is a high, mountainous country, abounding in ferocious wild beasts, and voracious birds ; such as eagles, vultures, hawks ; the elephant, the lion, the panther, the crocodile, and numerous tribes of monkeys.

The religion of *Abyssinia* is professedly the Christian, but it has little influence over the morals of the people, who are represented to be extremely savage and barbarous.

Nubia is a wild, desert country, inhabited by a deceitful and ferocious people, who are as miserable as the country which they inhabit.

On the southeastern coast of Africa are numerous tribes of black people, ignorant and superstitious. Their manners are rude, and their religion is either Pa'gan, or Mahom'etan. The climate is hot, and the country in some places exceedingly fertile.

The animals in this part of Africa, are the tiger, the rhinoceros, and vast herds of elephants.

The southern part of Africa is inhabited by the Hot'tentots, a people who are generally represented as a most ignorant, savage, and filthy race of men. They are slender and active ; have woolly hair, and yellow complexion. They besmear their bodies with fat, and paint their faces with soot or red lead. They go clad in sheepskins, and live a wandering, unsettled life. Their food consists of roots and berries, and of noxious insects and reptiles.

PRACTICAL QUESTIONS.

In what part of Africa is Egypt?

What is said of Egypt?

For what has it always been remarkable?

What has Egypt the honour of?

What are the pyramids?

How large and high are they?

What is the labyrinth?

What are the cat'acombs?

Under what government and religion is Egypt?

What is said of Abyssinia?

What are some of the beasts and birds?

What is the religion of Abyssinia?

How are the people represented?

What is said of Nubia?

What are the animals in the southeastern part of Africa?

In what part of Africa do the Hottentots live?

How are they represented?

In what do they clothe themselves?

Of what does their food consist?

LESSON XXXIV.

At the Cape of Good Hope, the southern extremity of the country of the Hottentots, is an English colony, from which it is hoped, that civilization and religion may be introduced among the miserable natives.

This part of Africa is naturally mountainous and barren; but the industry of the Dutch, who first established this colony, has overcome the obstructions of nature, and rendered the soil so productive, as to afford, not only a supply for the inhabitants, but also refreshment for American and European vessels in their voyages to the East Indies.

This country abounds in various animals; but it is more particularly noted for the variety and beauty of its plants and flowers, which render it a delightful resort for botanists of other countries.

The western part of Africa south of the Great Desert is known by the general name of Guinea. It is of great extent, and is divided into Upper Guinea, and Lower Guinea.

Upper Guinea is north of the equator, and contains Benin, Gold Coast, Ivory Coast, Grain Coast, and Sierra Leone.

The coasts of Guinea take their names from the several articles which they produce.

Benin is a large and powerful kingdom, and seems to have made more progress in civilization, than the other parts of Guinea.

At Sierra Leone, or *Mountains of Lions*, so called from the mountains being infested with those animals, there is an

English settlement for the purpose of trading with the natives, and of giving them religious and other instruction.

Lower Guin'ea comprises Loan'go, Con'go, Ango'la, and Bengue'la.

This country produces corn, various kinds of fruit, honey, and bees-wax.

The climate of Guin'ea is generally hot, and unhealthy to Europeans. The soil is fertile, where the moisture is enough to support vegetation.

The whole of this country is inhabited by various tribes of dark savages of different complexions, and different manners. Some of them are hardy and warlike; others mild and sociable.

In some parts of the country the inhabitants are numerous, and the chiefs are able to raise and marshal large and powerful armies, the object of which too frequently is, to make prisoners of war for the purpose of selling them for slaves.

Nigritia or Ne'groland is a country of great extent in the interior of Africa. It contains many large and populous kingdoms, and is a source of numerous slaves, which are brought to the coasts of Guin'ea for sale.

Tombuc'too is one of the most celebrated kingdoms of this part of Africa. It is situated near the river N'iger, and is represented as being well watered, and a fertile country.

The productions of Tombuc'too are numerous, valuable, and abundant. The articles of trade are ivory, slaves, gold dust, and ostrich feathers.

Accounts of this country have, for several years past, excited great interest in England and America; but as yet little is known of it with certainty.

PRACTICAL QUESTIONS.

What colony is at the southern extremity of Africa?

What is said of this part of Africa?

What has rendered the soil productive?

For what is it particularly noted?

In what part of Africa is Guin'ea?

How is it divided?

What does Upper Guin'ea contain?

For what purpose was the English settlement at Sier'ra Leo'na established?

What does Lower Guin'ea comprise?

What do these countries produce?

What is the climate?

What is the soil?

What is said of the inhabitants?

What is frequently the object of the armies in this part of Guin'ea?

What is said of Nigritia?

What is Nigritia the source of?

Where is Tombuc'too situated?

How is it represented?

What are some of the articles of trade?

What is really known of Tombuc'too?

Concluding Remarks on Geography.

WE have now travelled over the surface of this earth, and given a hasty sketch of some of its most prominent features; as its continents, oceans, islands, and seas, its loftiest mountains, and largest rivers. It must not, however, be thought that a sufficient knowledge of this subject can be obtained from this short account. To complete these First Lessons, we must have recourse to *Cummings' Ancient and Modern Geography*, with an Atlas of larger maps, than could possibly be given in

this little book, but which are absolutely necessary to a proper understanding of this subject.

Having taken this survey of our earth, let us pause, and for a moment turn our eyes upward towards the heavens, and contemplate those brighter worlds, whose dazzling lustre makes our day, and whose milder radiance cheers the dark and solitary hours of night. These distant bodies, which have always been regarded with admiration, form the subject of astronomy.

LESSON XXXV.

Astronomy.

Astronomy is that science which treats of the heavenly bodies, and explains their motions, periods, eclipses, distances, and magnitudes.

The *first division* of the heavenly bodies, is into luminous and opaque.

Luminous bodies are such as give light of themselves.

Opaque bodies are such as do not give light of themselves. They cannot be seen, but by light from some luminous body shining on them.

The *second division* of the heavenly bodies is into fixed stars, primary planets, secondary planets, and comets.

The *fixed stars* are those bright luminous bodies in the heavens, which always appear to us to pre-

serve the same situation in regard to each other.)

(Our sun is supposed to resemble the stars in its nature and fixed position, and is therefore properly classed with them.)

(The *primary planets* are large, globular, opaque bodies, which revolve about the sun as their common centre.)

The planets, although opaque bodies, appear to us bright, as the stars do, because they are illuminated by the sun's light.)

(The *secondary planets* are smaller opaque bodies, which revolve about their primaries, and are, at the same time, carried with them round the sun.)

(The secondary planets are also called moons or satellites.)

(Our moon is a secondary planet or satellite to the earth, and revolves round it once a month.)

(The *comets* are large, globular, opaque bodies, like the planets, which perform their revolutions about the sun in very elliptical orbits, and have the sun in one of their *foci*.)

(The *orbit* of a planet is the path in which it moves round the sun.)

(A very elliptical orbit is a very long and narrow ellipse or oval.) (See the figure of part of a comet's orbit passing through the Solar System at the end of the book.)

(The *foci* of an orbit, are two points near the extremities or ends of the orbit.)

PRACTICAL QUESTIONS.

What is astronomy?

What is the first division of the heavenly bodies?

What are luminous bodies?

What are opaque bodies?

What is the second division of the heavenly bodies?

What are fixed stars?

What is supposed of our sun?

What are the primary planets?

Why do the planets, which are opaque bodies, appear to us bright?

What are the secondary planets?

What are the secondary planets called?

What is our moon?

What are the comets?

What is the orbit of a planet?

What is an elliptical orbit?

What are the foci of a planet's orbit?

LESSON XXXVI.

The Solar System.

(The system of Astronomy, which is now universally admitted to be true, is the *Solar System*.)

(This system is called *Solar* from the Latin word *Sol*, which signifies the *Sun*.)

(The *Solar System* consists of the sun, the planets, and the com-

ets; and supposes the sun to be in the centre of the system, and all the planets to revolve round him from west by south to east.)

The names of the primary planets, and the characters which denote them, are as follows;

| | | | | | |
|----------|------|--------|---|-----------|------|
| Mer'cury | ♂ | Vest'a | ♄ | Ju'piter | ♃ 4. |
| Ve'nus | ♀ | Ju'no | ♁ | Sat'urn | ♄ 7. |
| Earth | ☉ 1. | Ce'res | ♀ | Her'schel | ♁ 6. |
| Mars | ♂ | Pallas | ♂ | | |

The figures at the right hand of some of the characters, denote the number of satellites or moons, which belong to those particular planets.

(The sun ☉ is a large, globular, luminous body, and the source of light and heat to the solar system. It is nearly nine hundred thousand miles in diameter, and more than a million times larger than our earth.)

From the effects which this immense body has in enlightening and warming us, and in promoting vegetable and animal life, we should naturally be disposed to believe it were a vast body of fire; but

this opinion, although it prevailed for ages, is now rejected.

Philosophy teaches us to believe, that if the rays of light which the sun darts forth through the heavens, were as cold as particles of ice, yet it is possible, they might be of such a nature, as, when mingled with bodies on the surface of the earth, to produce all the warmth, animation and enlivening effects, which are now experienced.

(The sun appears to our naked sight to be perfectly flat and smooth; but from dark spots, which are frequently seen on its surface, and from their peculiar motion from one side of it to the

other, it is well known, that it is a round body, and that it revolves on its axis once in 25 days.

Dr. Her'schel, a learned astronomer, supposes that these dark spots on the sun may be the tops of mountains, seen through the luminous clouds which sur-

round it, and that some of them are at least three hundred miles high.

It is not improbable, therefore, that the sun may so nearly resemble this earth, as to be a suitable residence for rational and immortal beings.

PRACTICAL QUESTIONS.

What is the true system of astronomy?
Why is it called the solar system?
Of what does the solar system consist?
What does it suppose?
Name the primary planets.
What is the sun?
How many miles is it in diameter?
How much larger than the earth is it?
What might we naturally suppose the

sun to be?
What does philosophy teach us?
How does the sun appear to us?
How is it known that the sun is round, and that he revolves on his axis?
What does Her'schel suppose the dark spots on the sun may be?
How high does he suppose the mountains are?

LESSON XXXVII.

Planets.

The planets perform their revolutions round the sun in different lengths of time, and at different distances.

Those planets near the sun, perform their revolutions in less time, than those more distant, for two reasons; which are, that they move faster, and have less distance to go.

The primary planets are divi-

ded into two classes, *inferior* and *superior*.

The *inferior* planets are those which revolve about the sun, *below* or *within* the earth's orbit; as, *Mercury* and *Venus*.

The *superior* planets are those which revolve about the sun *above* or *without* the earth's orbit; as *Mars*, *Jupiter*, *Saturn* and *Her'schel*.

Mercury ☿ moves round the sun in about 3 months, at the distance of 36 millions of miles, and with the inconceivable rapidity of 109 thousand miles an hour.

Mercury is but *one sixteenth* as large as the earth, and always appears so near the sun, that it is seldom seen.

Venus ♀ moves round the sun in about $7\frac{1}{2}$ months, at the distance of 68 millions of miles, and at the rate of 89 thousand miles an hour.

Venus is the most beautiful star in the heavens, and is what we call evening and morning star. It is nearly as large as our earth.

The *Earth* ☉ is the planet on which we live. It is nearly 8 thousand miles in diameter, and

25 thousand miles round. It moves round the sun once a year, at the distance of 95 millions of miles, and at the rate of 68 thousand miles an hour; that is, more than a thousand miles a minute.

The *Earth*, in her revolution round the sun, is accompanied by the moon, which moves round her once a month.

Mars ♂ moves round the sun in about 23 months, at the distance of 144 millions of miles, and at the rate of 55 thousand miles an hour.

Mars is about *one seventh* as large as the earth, and of a fiery red appearance.

Vesta, *Juno*, *Ceres*, and *Pallas*, are small planets of modern discovery, of which little is known. They are sometimes called *Asteroids*, and move round the sun next in order beyond Mars.

PRACTICAL QUESTIONS.

What reasons can be given, why the planets near the sun, revolve in less time, than those more distant?
How are the primary planets divided?
What are the inferior planets?
With what rapidity does *Mercury* move

round the sun?
What is said of *Venus*?
How far is the earth from the sun?
How fast does the earth move in her orbit?
What is the appearance of *Mars*?
What planets are called *Asteroids*?

LESSON XXXVIII.

Jupiter ♃ moves round the sun in about 12 years, at the distance of 495 millions of miles, and

at the rate of 29 thousand miles an hour.

Jupiter is the largest planet in the So-

lar System, being 14 hundred times larger than the earth, and is the brightest star in the heavens except Venus. He has four *Satellites* or moons.

Saturn $\frac{1}{2}$ moves round the sun in $29\frac{1}{2}$ years, at the distance of 900 millions of miles, and at the rate of 22 thousand miles an hour.

Saturn is 906 times larger than the earth, is surrounded by a large luminous ring, and is attended by 7 moons, which altogether make a beautiful appearance when seen through a telescope.

Herschel or the Georgium Sidus is the most remote planet from the sun yet discovered. He moves round the sun in $83\frac{1}{2}$ years, at the distance of 18 hundred millions of miles, and at the rate of 15 thousand miles an hour.

Herschel is about 30 times larger than the earth, and is attended by 6 moons.

Of these *primary planets*, it may be observed, that the earth has 1 satellite or moon, Jupiter 4, Saturn 7, and a broad illuminated ring, which encompasses it, and *Herschel* has 6 moons.

The satellites are all small bodies, compared with their primaries.

Comets. The comets derive their name from the Greek word (*kome*) which signifies *hair*; in consequence of the resemblance there is between long bright flowing hair

and the luminous train or blaze, which generally attends a comet.

The comets move round the sun in very long elliptical orbits, having the sun near one of the extremities.

When a comet is in that part of its orbit nearest the sun, it moves with a velocity, far exceeding that of any of the planets.

The planet Mercury, in his rapid flight round the sun, travels 109 thousand miles in an hour, which is as far as we could travel in 3 years, at the rate of 100 miles a day. Yet some of the comets, when near the sun, fly with the immense velocity of 830 thousand miles an hour, which is more than 8 times swifter than the motion of Mercury; so that the comet would travel farther in one hour, than we could in 24 years, even at the rate of 100 miles a day.

The shortest period, in which any comet revolves round the sun, is not less than about 75 years. What then is the immensity of space, through which some of them must move in several hundred years, the time in which it takes most of them to perform a revolution round the sun?

The appearance of comets, was, in ancient times, a source of terror and alarm; it being supposed, that they portended some direful calamity to states and empires; but the progress of knowledge has dissipated these apprehensions, and they are now regarded as astronomical phenomena, which excite no fear or alarm.

The number of comets, already discovered, is from 4 to 5 hundred.

PRACTICAL QUESTIONS.

- What is said of Ju'piter?
 How much larger is he than the earth?
 What is said of Sat'urn?
 What is said of Her'schel?
 What is the length of his year, or the time of his revolution round the sun?
 At what distance is Her'schel from the sun?
 Why do the comets derive their name from a Greek word signifying hair?
 How do the comets move round the sun?
- What is the velocity of Mer'cury?
 What is the velocity of a comet, when nearest the sun?
 How long would it take us, travelling 100 miles a day, to go as far as a comet near the sun would in one hour?
 What is the shortest time in which any comet revolves round the sun?
 What effect had the appearance of comets in former times?
 What has dispelled the fears they excited?

LESSON XXXIX.

The Earth.

We have now given a short account of the *primary planets*; their size, compared with the earth; their distances from the sun; their several velocities; and the length of time, in which they perform their revolutions.

We have also attended the comets in their rapid flight round the sun, and must now leave them to perform their immeasurable circuits through the heavens, whilst we return to the earth, and more attentively consider some of its peculiar phenomena.

We have already, in the beginning of this book, given an explanation of the axis and poles of the earth, of several of the circles, which are supposed to surround it, and of the *cardinal points*; all which it will be proper here to return to and review.

The *horizon* is an imaginary

great circle, which encompasses the earth round the middle, and divides the *visible* part of the heavens from the *invisible*.

This is the circle, which, from some elevated place, we see around us, where the heavens and the earth appear to meet.

The *horizon* is not supposed to be fixed and stationary at any one place on the earth; but every place has its own *horizon*.

Take a small ball, and lay upon the top of it a paper circle, and it will represent the *horizon* of that place on which it lies.

The *axis* of the *horizon* or any other circle, is an imaginary straight line passing through its centre, perpendicular to its plane.

Thrust a pin through the centre of the paper circle, perpendicular to its plane, and it will represent the *axis*; and the extremities of it, the *poles*.

The horizon is divided into four equal parts of 90° each, by the *four cardinal points*, *east*, *west*, *north*, and *south*.

The *zenith* is the point in the heavens exactly over our heads; the *na'dir* is the point under our feet, exactly opposite the *zenith*.

The horizon, on an artificial globe, is represented by a broad wooden circle, en-

compassing it round the middle and dividing it into two equal parts, *upper* and *lower hemispheres*.

The *ecliptic* is an imaginary great circle in the heavens, in the plane of which the earth performs its revolution round the sun.

The orbit of the earth lies exactly in the plane of the *ecliptic*.

Place two wire or other circles of different sizes on a table, so that one shall lie within the other, and the inner circle will represent the earth's orbit, the outer one, the *ecliptic*, and the surface of the table, the plane of the *ecliptic*.

PRACTICAL QUESTIONS.

What is the axis of the earth? (*See p. 9.*)
 What are the poles of the earth?
 What are the cardinal points? (*See p. 13.*)
 What is the equator? (*See p. 14.*)
 What is a meridian? (*See p. 18.*)
 What is the horizon?

What is the axis of the horizon?
 How is the horizon divided?
 What is the zenith?
 What is the na'dir?
 What is the ecliptic?
 What is the position of the earth's orbit?

LESSON XL.

Vicissitudes of Day and Night.

The most obvious changes, which we witness, are the vicissitude of day and night, and the apparent revolution of the heavenly bodies, the sun, moon, and stars, once in 24 hours.

If we attend to the changes which take place in the course of a day, which is from sun-rise to sun-rise again, we, in the first place, see the feeble light of the morning beginning to dawn in the east, and to spread itself wider and wider above the horizon, till at length the sun ap-

pears and fills all the heavens above us with light and gladness.

The sun then gradually rises higher and higher up the heavens, bending his course a little southward till he comes to the meridian, when it is the middle of the day; he then gradually descends towards the western horizon, where he sets and disappears from our sight.

As the sun retires, his light gently fades away in the west, and night succeeds with all her myriads of stars.

If we follow the course of the stars, we see them also rising in the east, and moving in regular succession across the heavens to the west, where one by one they set and disappear. This solemn procession continues for several hours, till at length the morning light again begins to dawn, and another day succeeds.

Thus all the heavenly bodies appear to our senses to move regularly round the earth once in 24 hours. This, however, is only in appearance, for in reality the sun and stars are stationary, and day and night are caused by the revolution of the earth round her own axis once in 24 hours.

Through the centre of an apple or any other round body, pass a wire for an axis; then hold it before a lamp, so that the light may shine equally on both poles at once. The side towards the lamp will be illuminated, and will represent day; the other being in the shadow of its own body, will represent night.

Now suppose the room on every side to be adorned with little stars, it is very evident they would be distinctly seen from the dark side of the small globe, while the much brighter light of the lamp on the other side, would render them invisible.

If the globe now be turned round on its axis, it will be seen, that one part of the surface is constantly passing out of its own shadow into the light, which represents morning, or the rising of the sun; the opposite side, as it passes out of the light into the dark part, represents the evening.

Thus it appears that a revolution of the earth round her axis, once in 24 hours, will cause the heavenly bodies to appear to revolve round her, once in the same length of time.

PRACTICAL QUESTIONS.

What are the most obvious changes which we witness?

Where do we see the light of day begin?

Where does the sun descend to the horizon?

What is said of the course of the stars?

Do the sun and stars really move round the earth?

How are day and night caused?

LESSON XLI.

Motion of the Planets.

The planets have two motions, one round their axis, and the other round the sun.

The motion of a planet round its axis makes its day, and is called its *diurnal revolution*.

The motion of a planet round the sun makes its year, and is called its *annual revolution*.

As the rotation of the planets on their own axis, and their velocity in their orbits are all different, it is evident, that both their day and year must also be different.

Jupiter's year or revolution round the sun, is about twelve of our years; Saturn's about twenty-nine and a half, and Herschel's no less than eighty-three and a half years.

The *ecliptic* (as already defined) is an imaginary great circle in the heavens, in the plane of which the earth performs her annual revolution round the sun.

The *zodiac* is a space in the heavens 16 degrees broad; 8° above, and 8° below the *ecliptic*.

In order to form correct ideas of the *ecliptic*, the *zodiac*, and of the motions of the planets round the sun, let us make the following suppositions.

1. Suppose the room, in which we are,

to be a hollow glass globe, perfectly round, and a lamp to be suspended exactly in the centre of it, to represent the sun.

2. Suppose the stars to be painted all over the room, exactly in the position, in which we see them through the glass in the heavens.

3. Suppose a circle drawn or painted round the sides of the room just as high as the sun is, so as to divide the room into two equal parts, one half above, and the other below the circle, and the sun to be in the centre.

This circle represents the *ecliptic*, in the plane of which the earth performs her revolution round the sun; but comparatively at no great distance from it. (See the *Solar System* at the end of the book.)

4. Now suppose two other circles drawn round the room, one about a foot above the *ecliptic*, and the other about a foot below it. The space contained between these two circles represents the *zodiac*.

5. To form an idea of the *position* of the orbits of the planets to the plane of the *ecliptic*, the earth's only excepted, place a wire circle on a table, so that one half of it may project over the side of the table, and the other half lie on it; then raise the side of the circle a little, which lies on the table, and depress the other side a little below it, and it will be what is called *oblique* or *inclined* to the surface, so that one half will be above, and the other below it. This will give a correct idea of the position of the orbits of the planets to the plane of the *ecliptic*.

But it must be remembered, that no

one of the planets ever ascends above, or descends below the limits of the *zodiac*.

Now suppose the several planets put in motion at different distances from the sun, so that the earth should revolve exactly in the plane of the *ecliptic*, and the other planets crossing the plane of it in two opposite points, perform one half of their cir-

cuits above, and the other half below; suppose also, that they all move with different velocities, those nearest the sun the fastest, and the others slower and slower, the farther distant they are; and we have a very good idea of the *planetary motions* in the *solar system*.

PRACTICAL QUESTIONS.

How many motions have the planets?

What does a planet's motion round its axis make?

What does a planet's motion round the sun make?

What is said of the rotation and velocity of the planets?

How long is Jupiter's year?

How long is Saturn's?

How long is Herschel's?

What is the *ecliptic*?

What is the *zodiac*?

Which of the planets revolves round the

sun in the plane of the *ecliptic*?

What is the position of the orbits of the other planets to the *ecliptic*?

Beyond what limits do the planets never ascend above nor descend below the *ecliptic*?

Which of the planets moves fastest?

Which have farthest to go in performing their revolutions?

For how many reasons do the planets, near the sun, describe their orbits in less time, than those more remote do?

LESSON XLII.

Vicissitude of the Seasons.

The seasons of the year are those delightful changes, which we constantly experience, of heat and cold, seed time and harvest.

There are four seasons in a year, viz. Winter, Spring, Summer, and Autumn; each continuing three months.

The vicissitude of the seasons is

caused by the revolution of the earth round the sun once in a year, or 365 days.

To understand how the revolution of the earth round the sun produces the seasons, let us take a small globe, with a wire through its centre, to represent the axis, and hold it with its axis perpendicular on the west side of a lamp, and it will be seen, that the lamp shines on one half

of the globe at once, that is, from the top to the bottom, or from one pole to the other.

If we move the globe slowly round the lamp, from west by south to east, keeping the axis in the same perpendicular position, it will be seen, that no change of illumination takes place in the whole revolution, but that the lamp continually enlightens equally from one pole to the other.

From this position it is evident, there would be no change of illumination during a complete revolution of the earth, but that the earth would preserve the same position in regard to the sun in every part of its orbit.

Let us now turn the axis from a perpendicular, about one third towards a horizontal position, so that the upper end of the axis or the north pole, shall incline northward, and the lower end or the south pole, shall incline southward.

Let us move it again slowly round the lamp in the same direction as before, observing to keep the axis inclined, and pointing equally northward all the way round.

It will now be seen, that when we stand west of the lamp, and hold the globe directly before us, having the north pole in our left hand, and the south pole in our right, the lamp will illuminate from pole to pole exactly as it did in the former position: but if we move it southward one quarter the way round, we see that the north pole will be inclined or turned towards the lamp, which is north of it, and that the south pole will be equally

turned from the lamp towards the south; of course more of this north part of the earth will be enlightened and heated by the lamp, which would produce, in this part of the earth, *summer*; and more of the south part of the earth will be turned from the lamp, and be less heated and enlightened, which would produce *winter* in the southern hemisphere.

Let us now move the globe another quarter of a circle, to the east side of the lamp, keeping the axis of the earth in the same position, that is, inclined a little northward and southward.

It will now be seen, that the poles of the earth are exactly in the same position in relation to the lamp, as when we set out on the west; and that the lamp, equally illuminates from pole to pole; and as neither pole receives more light and heat from the lamp, than the other, it is neither summer nor winter. This situation represents *autumn*.

We now move the globe another quarter of its orbit to the north side of the lamp, where it will be seen, that the south pole is inclined towards the sun, and that the north pole is turned from it. This produces *summer* on the south side of the equator, and *winter* on the north side.

Now if we complete the revolution, and bring the globe to the west side of the lamp, where we first set out, we bring the poles again equally in sight of the lamp, which represents *spring*.

Thus it is evident, that the seasons are produced by the revolution of the earth round the sun, with its axis inclined nearly one third to the plane of the ecliptic.

PRACTICAL QUESTIONS.

What are the seasons of the year?

How many seasons are there?

What causes the change of seasons?

In what position of the axis might the earth move round the sun, without producing any change of seasons?

What must be the position of the earth's axis in order to produce the seasons?

At what season of the year is the earth in the southern part of its orbit?

In what part of its orbit is the earth in winter?

LESSON XLIII.

Different lengths of day and night, and different degrees of heat and cold.

The increase and decrease of day and night, and the different degrees of heat and cold, in different seasons of the year, are owing to the same cause as the changes of the seasons.

Take a small ball with a wire through the centre of it for the axis; tie a coloured thread round the centre, between the poles, for the equator, and set a row of pins at a little distance from each other, in a straight line from pole to pole, quite round the ball, and we have a convenient globe for the illustration of this subject.

Hold the globe on the west side of a lamp, with the north pole inclined about one third northward towards the plane of the ecliptic, in the same manner, as it was to show the changes of the seasons.

Turn the globe eastward on its axis, without moving it forward in its orbit, and we see the heads of all the pins on the upper side, coming at the same time

into the lighted part, which represents morning; and the heads of all the pins on the under and opposite side, passing at the same time from the lighted, into the dark part, which represents evening.

Now since all the pins on one side would at the same moment enter the light, continue equally long in it, and all leave it at the same time, it is evident, that the day would be equally long in all parts of the earth, from one pole to the other; and it is equally evident, that all the pins would be equally long in passing through the shade, as through the light; of course, day and night would be equal all over the earth, which is called equinox, and this, being in the spring, is what is called the *vernal equinox*.

Now move the globe to the south side of the lamp, keeping the axis inclined as before, and as we turn it on its axis, we see several of the pins perform their revolutions round the north pole wholly in the light of the lamp. These have perpetual day, as they do not pass into any

part of the earth's shadow. A little farther from the north pole the pins perform a small part of their revolutions in the earth's shadow, but the greater part in the light of the lamp. These have long days and short nights.

The farther we go from the north pole, the longer are the nights, and the shorter the days, till we come to the equator, where day and night are always equal.

As we pass the equator, the days become shorter and shorter, and the nights longer and longer, till we come near the south pole, where we find several of the pins revolving wholly within the shade. These have no day, but perpetual night.

If we move the globe from the south to the east side of the lamp, we see the lighted and dark parts return to the same state in which they were on the west side of it: that is, so that the lamp will shine equally from pole to pole, in which position the days and nights become equal again.

Let us now move the globe to the north side of the lamp, still keeping the north pole inclined as before, and we see the parts round the north pole thrown a little from the lamp into the shade, and just as much of the south pole brought into the light of the lamp.

On turning the globe on its axis, while in this position, we see the pins near the south pole revolving wholly in the light,

which gives them perpetual day; and those near the north pole, revolving wholly in the shade, which involves them in perpetual night.

At the equator it will be seen, that the days and nights are equal, as they always are

As the increase and decrease of heat generally accompany the increase and decrease of light, farther explanation on that subject is unnecessary.

The reasons assigned for the days being warmer in summer than in winter, are, 1. Because the days in summer being longer than the nights, the sun has longer time to heat the earth during the day, than the earth has to cool during the night; and 2. Because the rays of the sun fall more perpendicularly upon the earth in summer, than they do in winter.

The reasons for a greater degree of cold in winter than in summer are exactly the reverse.

PRACTICAL QUESTIONS.

To what causes are owing the increase and decrease of day and night, and the different degrees of heat and cold?
In what parts of the orbit is the earth

when the days and nights are equal all over the earth; that is, is it east, west, north, or south?
What is equal day and night called?

In what part of the orbit is the earth, when it is summer at the north pole, or in the northern hemisphere?

On which side of the sun is the earth when

it is winter in the northern hemisphere?

What is the first reason for its being warmer in summer, than in winter?

What is the second reason?

LESSON XLIV.

The Moon, Eclipses, and Tides.

The moon is a globular opaque body, about 21 hundred miles in diameter, and is a secondary planet to the earth, around which it revolves once in $29\frac{1}{2}$ days at the distance of 240 thousand miles.

The revolution of the moon round the earth produces all the varying appearances of increase and decrease.

To illustrate the *phases* or changes of the moon, let a small globe, with a string fastened to it, be swung round the head. The head will represent the earth, and the globe will represent the moon revolving round the earth.

Place a lamp on a stand as high as the head in the centre of the room, to represent the sun.

As the moon revolves round us, we must suppose that no part of it is visible, except so much of its surface as is illuminated by the lamp. It is then evident, that when the moon comes between us and the sun, or in conjunction with it, the lighted part of the moon will be wholly from us and will disappear. This represents the *change* of the moon.

As the moon goes forward, the illuminated side begins to come in sight. This represents *new moon*.

When the moon has advanced one quarter of the way round from the sun, we see one half of the illuminated side. This represents the moon *half full*.

As the moon goes on in her orbit, the lighted part comes more and more into view, till it is exactly on the opposite side of us from the sun, when the whole of the lighted part will be towards us. This will represent *full moon*.

As the moon proceeds from opposition through the other half of her orbit, the lighted side will be turned more and more from us, till it comes into conjunction, which again represents the *change*.

An *eclipse* is a *total* or *partial* privation of the light of the *sun* or *moon*.

An *eclipse* of the sun is caused by the moon's passing between the earth and the sun, and thus cutting off a part or the whole of the sun's light from the earth.

To understand this, suppose the small globe, representing the moon, to pass at conjunction *exactly* between the lamp and

our eyes, and it is evident, that the little globe will for a moment, darken or eclipse the lamp, which represents the sun.

An *eclipse* of the moon is caused by the moon's passing through the earth's shadow, or a part of its shadow.

If we could see no part of the ball, representing the moon, but when the lamp shone on it, it is evident, that if when in opposition, it should pass through our shadow, it would lose the light of the lamp, and disappear or be eclipsed.

A little attention to this subject, as here explained, will render it quite familiar and intelligible to any one.

It should be remarked, that the moon at conjunction, generally passes a little

above or below the sun, and in opposition a little above or below the earth's shadow, so as not to produce eclipses in every revolution. Were it not for this, the sun would always be eclipsed, at the conjunction of the moon, and the moon would always be eclipsed, when in opposition.

Tides are the ebbing and flowing of the sea.

The rising and falling of the tides is owing to the *attraction* of the sun and moon.

It is very evident, if the moon strongly attracts the earth, it will cause the water on the surface of the earth under the moon, to be considerably swollen or raised, which would be a tide.

PRACTICAL QUESTIONS.

What is the moon?

How often does she move round the earth?

What produces the change and various appearances of the moon?

What is an eclipse?

What causes an eclipse of the sun?

What causes an eclipse of the moon?

What are the tides?

To what are the tides owing?

Conclusion.

We have now taken a concise view of some of the most remarkable phenomena in the Solar System; but half of the wonders are not noticed, nor is it possible even to allude to them in this little work. Should life and health be spared, we hope hereafter to give a fuller

account of this sublime and wonderful science, in a manner more intelligible to young persons, than has hitherto been done. At present, we must close these Lessons with a concise notice of the *Fixed Stars*.

The *Fixed Stars* are so called

from their always appearing to preserve the same situation in regard to each other.

Little is with certainty known of the *fixed stars*, but that their number and their distance from the earth exceed the reach of thought.

The *fixed stars* are supposed to be large luminous bodies, like our sun, surrounded by systems of planets, which they enlighten, warm, and cherish.

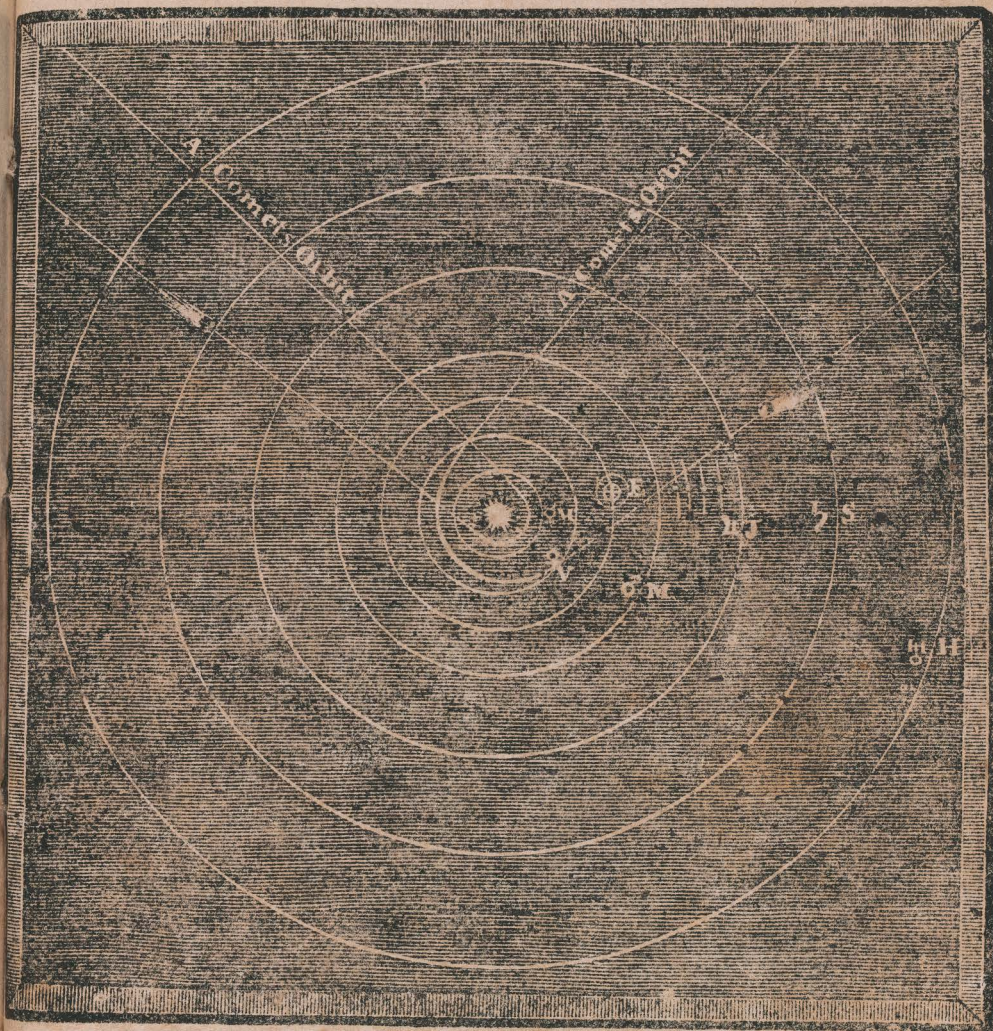
To form some conception of the distance of the stars, let us remember, that our sun is nearly 100 millions of miles from the earth, and that light travels with such immense velocity, that it is only 8 minutes coming from the sun to us. Now the light from the *nearest fixed star* travelling at the same rate, does not reach us in less time than three years; therefore the nearest fixed star is as many hundred millions of miles distant from this earth, as there are numbers of times eight minutes in three years: and some of the *fixed stars*, which are visible to us, are at least seven times this distance, which is so great, that their light is more than

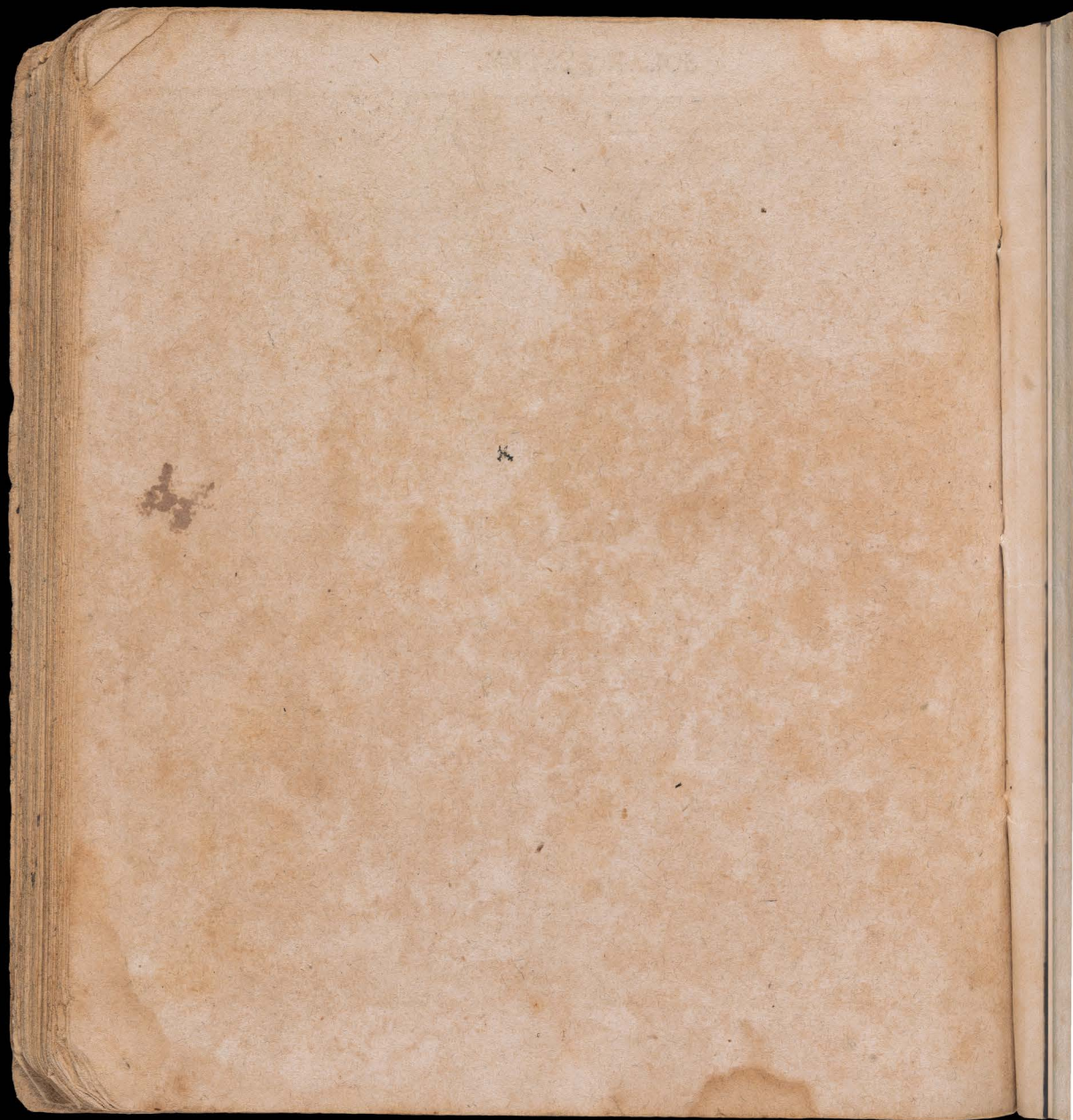
twenty years in performing its journey to our earth. The mind is lost and bewildered in the contemplation of a distance so great.

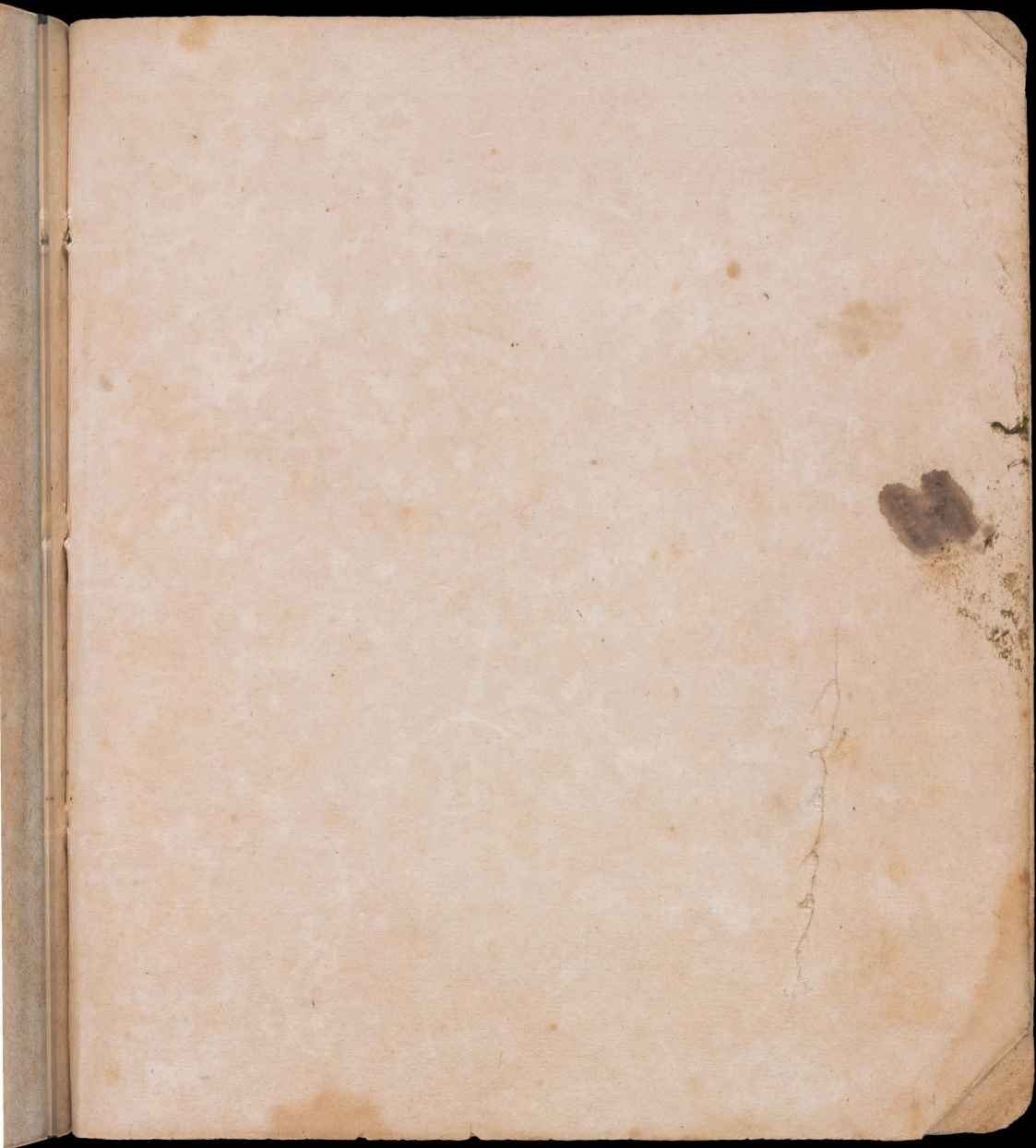
The number of stars is no less surprising, than their distance, although but about a thousand are visible to our naked eyes, and as but one half of the heavens is above our horizon at once, we of course see but about 500 stars at one view. But by the help of a telescope, more than 100 thousand are brought into view in a very small portion of the heavens only. What then are the myriads of myriads which fill the immensity of space around us! And what is the greatness, the wisdom, and power of that Almighty Being, who hath created, preserves and governs this wide universe of worlds, and of whom it is written, that the heaven and heaven of heavens cannot contain Him. In view of such a Being, and in contemplation of the immensity of his works, well may we exclaim—Lord, what is man, that thou art mindful of him; and the son of man, that thou visitest him?

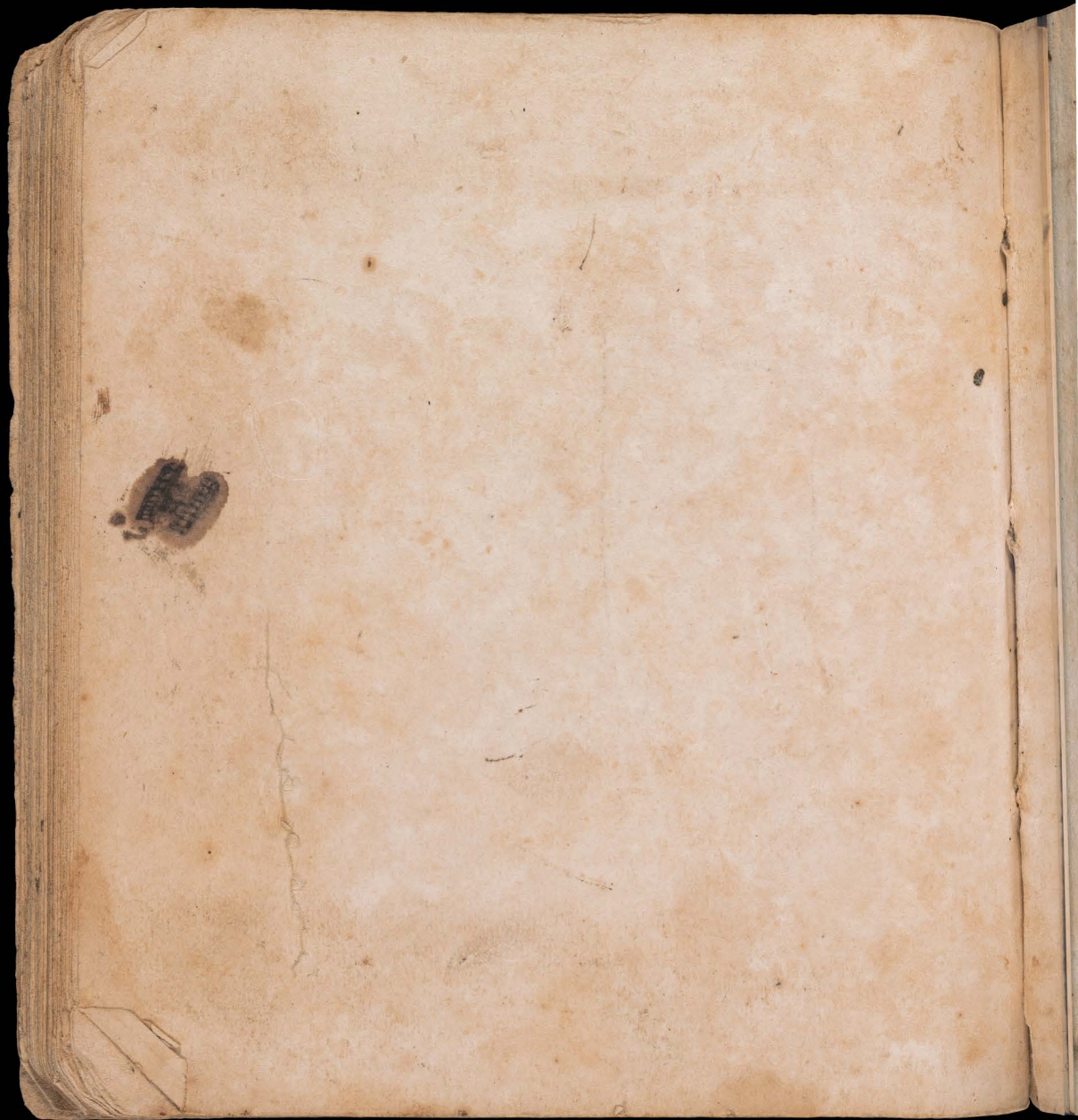
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SOLAR SYSTEM.









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